Review of
Forest Administration
in British India
1894-95 to 1903-04

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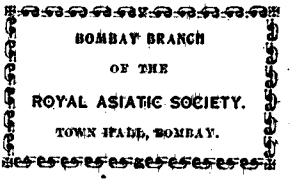

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REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1894-95.

to 1903-04
1904

BY

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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREA.

I.—Alterations in area.

During the year alterations in the area of Reserved Forests were effected as shown in the following table, resulting in a total increase of 2,682 square miles; the area of Reserved Forests under the control of the Forest Department stood at the end of the year at 74,271 square miles:—

Province.	In 1893-94.	Added in 1894-95.	Excluded in 1894-95.	At the close of the year 1894-95.	Remarks.
Bengal	5,831	8	...	5,839	
North-Western Provinces and Oudh.	3,762	3	...	3,765	
Punjab	(a)1,622	62	7	(b)1,677	(a) Exclusive of 118 square miles managed by the Military Department. (b) Exclusive of 119 square miles managed by the Military Department.
Central Provinces	19,572	11	41	19,542	
Burma (Lower)	6,374	724	27	7,071	
„ (Upper)	3,977	466	35	4,408	
Assam	3,683	36	3	3,716	
Coorg	114	124	...	238	
Ajmere	139	...	...	139	
Baluchistan	132	43	...	175	
Andamans	24	49	...	73	
Total	45,230	1,526	113	46,643	
Berar	4,157	44	22	4,179	
Total Bengal Presidency	49,387	1,570	135	50,822	
Madras „	10,787	694	15	11,466	
Bombay „	11,415	675	107	11,983	
Grand Total	71,589	2,939	257	74,271	

In the following statement all forest lands under the management of the Forest Department are shown, whether Reserved, Protected, or Unclassed State forests :—

Province.		Forest Area, in square miles.				Proportion of Forests to whole area of Province.	Proportion of Reserves to whole area of Province.	Remarks.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed State.	Total.	Per cent.	Per cent.	
Bengal	151,535	5,839	(a)3,091	4,034	12,964	8·55	3·85	* Exclusive of 9,225 square miles managed by the Civil authorities.
North-Western Provinces and Oudh.	107,141	(b)3,765	*94	44	3,903	3·64	3·51	(a) Exclusive of the areas in the Sonthal Parganas and in the districts of Chota Nagpur (except Singbhum and Hazaribagh), which are still unknown and cannot even be estimated.
Punjab	103,436	(c)1,677	(d)285	(e)3,995	5,957	5·75	1·62	(b) Includes 87 square miles of *leased* forests.
Central Provinces	86,643	19,542	...	390	19,932	23·00	22·55	(c) Includes 342 square miles of *leased* forests, and does not take account of 119 square miles managed by the Military Department.
Burma (Lower)	87,832	(f)7,071	...	(g)	7,071	8·11	8·11	(d) Exclusive of 921 square miles managed by the Civil authorities.
,, (Upper)	81,026	(h)4,408	...	(g)	4,408	5·70	5·70	(e) Includes 222 square miles of leased forests.
Assam	45,878	3,716	...	13,912	17,628	38·84	8·19	(f) Includes 569 square miles of *taungya* areas.
Coorg	1,882	238	655	...	893	56·45	15·04	(g) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extend protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Ajmere	2,711	139	...	(i)10	149	5·50	5·13	
Baluchistan	...	175	...	...	175	...	...	
Andamans	2,000	73	...	1,882	1,955	97·75	3·65	
Total	669,283	46,643	4,125	24,267	75,035	11·21	6·96	
Berar	17,717	4,179	...	...	4,179	23·56	23·56	(h) Includes 255 square miles of *taungya* areas.
Total Bengal Presidency.	687,000	50,822	4,125	24,267	79,214	11·53	7·39	(i) Village lands managed by the Department, but not yet brought under the Ajmere Forest Regulation.
Madras ,,	141,125	11,466	...	7,324	18,790	13·75	12·05	(j) Baluchistan left out of account.
Bombay ,,	122,667	(k)11,983	2,965	...	14,948	12·05	9·66	(k) Includes the area of the leased forests in the Dangs, estimated at 679 square miles.
GRAND TOTAL	950,792	74,271	7,090	31,591	112,952	11·88	7·81	

The area under the control of the Department at the close of 1893-94 stood at 103,848 square miles, and there has thus been an increase of 9,104 square miles during the year chiefly under Unclassed forests which show 6,911 square miles more than last year.

Bengal.—By the completion of the settlement of the Buxa Reserve, and the inclusion of the deserted village site of Tolokabad, 5,115 acres were added to Reserved forests. Under Protected forests, an increase of 32 square miles, being the estimated area of the Protected forests in the Hazaribagh District, has taken place. There was no change in the area of Unclassed forests.

North-Western Provinces and Oudh.—Owing to mistakes in previous returns, now rectified, there is an increase of 3 square miles in the Reserved forests, and a decrease of 2 square miles in the area of Unclassed forests of the Central Circle. In the Oudh and School Circles

changes were confined to an increase of 10 acres in the former, and a decrease of 15 acres in the latter; the total area under the management of the Department stood at 3,903 square miles or 3·64 per cent. of the area of the Province. There is, in addition to the areas shown above, a large extent of forests protected under Chapter IV of the Forest Act, managed by the District authorities, as well as considerable and valuable areas in the Terai, the protection of which, according to law, is under consideration; the area of these forest lands is unknown.

Punjab.—The total area under the control of the Department at the close of the year stood at 5,957 square miles as compared with 5,929 square miles at the close of 1893-94. There was an increase of 62 square miles in the area of Reserved forests, this having been brought under the provisions of the Forest Act from the Unclassed forests of Kulu, which show a corresponding decrease. An area of 29 square miles Unclassed forest in Dera Ghazi Khan, formerly under the management of the Deputy Commissioner, were transferred to the charge of the Forest Department, bringing, with some other smaller changes, the areas of the various classes of forests to—

Reserved,	Protected,	Unclassed,	Total
1,677	285	3,995	5,957

i.e., 5·75 per cent. of the area of the Province.

Central Provinces.—The total forest area managed by the Department was reduced during the year by 30 square miles, 12 square miles of which were due to rectifications of previous areas and the remainder chiefly to disforestation operations in the Southern Circle. Some changes in the classification of forests were made, and the following table contrasts the area of the various classes of forests compared with 1893-94 :—

Circles.	1st July 1894.				30th June 1895.			
	A. Forests under strict conservation.	B I. areas available for cultivation.	B II. unadistributed area.	Total.	A.	B I.	B II.	Total.
Northern Circle . .	3,887	2,067	4,102	10,056	3,887	2,067	4,099	10,053
Southern „ . .	5,510	330	3,676	9,516	5,417	762	3,310	9,489
Total .	9,397	2,397	7,778	19,572	9,304	2,829	7,409	19,542

Proposals for the disforestation of considerable areas fit for cultivation were practically complete, but the results do not appear in the returns for the year. The work of determining what proportion of the B. forests should be given up for cultivation will now, it is thought, be shortly finished, and its completion will enable Government to include the remaining B. II. forests either in A. or B. I. forests.

Burma.—The area of Reserved forests was increased by 1,030 square miles, not taking into account an area of 89 square miles set aside for *taungya* cultivation.

In Lower Burma 637 square miles were added to the Tenasserim Circle, and a net area of 60 square miles in the Pegu Circle, whilst in Upper Burma 252 square miles were added in the Eastern and 207 square miles in the Western Circle; thus, with other minor changes, bringing the total of Reserved forests here to 4,408 square miles. The Reserved forests now amount to 8·11 per cent. of the area of the Province in Lower Burma, and in Upper Burma to 5·70 per cent. Protection over an unknown area in Upper Burma is also extended to certain trees and produce in unoccupied lands, under Chapter II of the Forest Act.

The following statement shows the areas of the Reserves in each Circle at the close of the year :—

Circle.	Reserved forests.	Taungya areas.	Total.	Proportion of Reserved forest to area of Province.
	Square miles.	Square miles.	Square miles.	Per cent.
Pegu	2,567	371	2,938	...
Tenasserim	3,935	198	4,133	...
Total Lower Burma (87,220 sq. miles)	6,502	569	7,071	8·11
Eastern	2,178	219	2,397	...
Western	1,975	36	2,011	...
Total Upper Burma (77,296 sq. miles)	4,153	255	4,408	5·70

Assam.—There was an increase to the Reserved forests of 33 square miles, the total now standing at 3,716 square miles. There was also an increase of some 7,000 square miles to Unclassed forests, principally owing to rectification of areas. The total forest area now stands at 17,628 square miles, or 38·8 per cent. of the area of the Province.

Coorg.—Reserved forests were increased by the addition of 124 square miles gained by the reservation of four Protected forests. The total area of forest lands now stands at 893 square miles (238 Reserved, 655 Protected), which is equal to 56·4 per cent. of the area of the Province.

Ajmere.—There was no change during the year. The area remains at 139 square miles Reserved forest and 10 square miles Unclassed forest.

Baluchistan.—Forty-three square miles were added to Reserved forests (17 square miles of Juniper forests at Torshor, 25 square miles at Surghond, and 1 square mile at Khushdilkhan), the total area now standing at 175 square miles.

Andamans.—Forty-nine square miles were declared Reserved forests during the year, the total standing at the end of the year at 73 square miles.

Berar.—In Berar the area of Reserved forest was increased by 22 square miles, due to the completion of the classification under the Berar Forest Law.

Madras.—There was an increase in the area of Reserved forest of 679 square miles. The following statement gives the changes of area which occurred during the year:—

Class.	Area on 1st July 1894.	Added during 1894-95.	Excluded during 1894-95.	Increase or decrease.	Area on 1st July 1895.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Reserved forests	10,787	694	15	+679	11,466
„ lands	7,	993	893	+100	7,324
Total .	18,011	1,687	908	779	18,790

The increase in Reserved forests occurred chiefly in the districts of Bellary and Anantapur in the Northern Circle, and in Nellore, South Arcot and Salem in the Central Circle, and Nilgiris in the Southern Circle.

Bombay.—To Reserved forests 675 square miles were added, and 107 square miles were excluded, leaving a net increase of 568 square miles. Of this 39 square miles were added in the Northern Circle, 160 square miles in the Central Circle, and 349 square miles in the Southern Circle, where some 290 square miles of Protected forest in Belgaum, Dharwar, and Kolaba were gazetted Reserves. The total area of Reserved forests at the close of the year stood at 11,983 square miles, being 9·66 per cent. of the area of the Province.

II.—Forest Settlements.

Work under this head made satisfactory progress and is now in many provinces approaching completion. The total increase to the area of Reserved forests during the year has been 2,682 square miles, of which 697 square miles were added in Lower Burma, 431 square miles in Upper Burma, 124 square miles in Coorg, 679 square miles in Madras and 568 square miles in Bombay. A total area of 6,911 square miles was also added to Unclassed forests, chiefly in Assam.

In Bengal 924 square miles were undergoing settlement. In the Central Provinces it is hoped that during 1895-96 settlement work will be nearly completed. In Upper Burma good progress was made in the examination of forests with a view to selection of Reserves, but much still remains to be done. In Assam 940 square miles was undergoing settlement. In Madras an area of 8,276 square miles still awaits settlement, and work there will not be completed for some five or six years.

The changes in the area under the control of the Department are shown in the following table :—

Province.	Alterations in area, in square miles during 1894-95.								Remarks.
	Reserved Forests.		Protected Forests.		Unclassed State Forests.		Total.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal	3	...	32	...	...	...	46	...	
North-Western Provinces and Oudh.	3	...	...	...	...	2	3	2	(a) Two square miles obtained by rectification of previous area figures, and 2 square miles by river action.
Punjab	62	7	...	...	(a) 39	(b) 66	101	73	(b) Two square miles due to rectification of previous area figures.
Central Provinces	(c) 11	(d) 41	...	...	...	1	11	42	(c) Eight square miles obtained by rectification of previous area figures.
Burma (Lower)	(e) 724	(f) 37	...	...	...	...	724	37	(d) Twenty square miles due to rectification of previous area figures.
,, (Upper)	(g) 466	(i) 35	...	...	...	...	466	35	(e) Twenty-seven square miles obtained by rectification of previous area figures.
Assam	36	3	...	...	8,358	1,666	8,594	1,669	(f) Eight square miles due to rectification of previous area figures.
Coorg	124	...	(j) 12	134	...	...	136	134	(g) Seven square miles obtained by rectification of previous area figures.
Ajmere	...	...	...	...	...	...	...	...	(i) Due to rectification of previous area figures
Baluchistan	43	...	...	...	...	1	43	1	(j) Two square miles obtained by rectification of previous area figures.
Andamans	49	...	...	...	...	50	49	50	(k) Two square miles obtained by rectification of previous area figures.
Net Total Increase or Decrease.	1,413	...	...	90	6,811	...	8,134	...	(l) Fifteen square miles obtained by rectification of previous area figures.
Berar	(k) 44	22	...	...	...	...	44	22	(m) Fourteen square miles due to rectification of previous area figures.
Net Total Increase or Decrease, Bengal Presidency.	2,435	...	...	90	6,811	...	8,156	...	(n) Twenty-seven square miles obtained by rectification of previous area figures.
Madras Presidency	(l) 694	(m) 15	...	...	(n) 993	(o) 893	1,687	908	(o) Forty-seven square miles due to rectification of previous area figures.
Bombay ,,	675	107	158	557	...	...	833	664	
Grand Net Total Increase or Decrease	2,632	...	...	489	6,911	...	9,104	...	

The following shows the work done in the various provinces :—

Bengal.—The only area finally settled during the year was the Panberi extension of the Buxa Division, area 4,595 acres; there were 924 square miles undergoing settlement at the close of the year. Thirty-two square miles were added to the Protected forests in Hazaribagh.

North-Western Provinces and Oudh.—In the Central Circle the work of definition of rights in the Reserved forests made considerable progress, but was not finished during the year. In Oudh the regulation of concessions continued, and will, it is expected, be finished during 1895-96.

The following areas were under settlement during the year in the Central Circle :—

	Acres.
Binsar and Garanath	23,000
Siahi Devi	2,560
Khair forest in the Bhabar and Tarai	12,000
Chatarpal	315

Punjab.—Sixty-two square miles of Reserved forests were added during the year and 7 square miles excluded; the proposed Reserved forests in Kulu came under the operation of Chapter II of the Forest Act, but the settlement of the remaining forests is still under

consideration. The settlement in the Shahpur district is still pending. In the Upper Sutlej Valley the settlement of all the more valuable tracts was practically concluded.

Central Provinces.—The work of classifying the forests, and excising from them areas suitable for cultivation made satisfactory progress although the results of this progress do not appear in the returns for the year. Changes in the classification of the forests caused some alterations in area as noted on page 3. Satisfactory progress was made, especially in the Southern Circle, in the preliminary work of examining the forests; and the classification has so far advanced that the returns for 1895-96 will indicate with some approach to finality the total area which it is intended to maintain permanently as Reserved forests in the Central Provinces: 41 square miles were excluded from Reserves, partly owing to rectification of area, partly to disforestment of areas chiefly in the Southern Circle, and 11 square miles were added to Reserves, chiefly due to rectification of areas.

Burma.—The progress made in reservation amounted to a net increase of 1,039 square miles, in addition to which 89 square miles were set apart for *taungya* cutters within the reserve boundaries. The Burma reserves, amounting to a gross area of 11,479 square miles, now contain 798 square miles over which the hill tribes can practice almost unchecked their original method of cultivation. Considerable difficulty was experienced in the protection of reserved trees, especially cutch, outside the Reserved forest boundaries, and steps to remedy this were under consideration. Considerable progress was made in the examination of new forest areas in Upper Burma.

The following table shows the areas finally settled and expenditure incurred during the year compared with the work done in 1893-94:—

	1894-95.		1893-94.	
	Area settled. Square miles.	Cost. R	Area settled. Square miles.	Cost. R
Lower Burma	681	1,447	584	1,776
Upper ,,	610	15,201	1,708	9,690
TOTAL	1,291	16,648	2,292	11,466

Assam.—An area of 36 square miles was finally settled during the year, and added to Reserved forests. There was, at the close of the year, an area of 940 square miles undergoing settlement, of which 223 square miles had already been enquired into.

Coorg.—There was no settlement work done during the year. It is hoped that the settlement of the Ghât forests will be shortly taken up. An addition of 124 square miles was made to Reserved forests by the reservation of forests hitherto temporarily classed as Protected.

Ajmere.—There was no new work undertaken. A new record of forest rights was prepared and submitted to the Government of India for orders. Certain modifications were suggested, and the record was in course of revision.

Baluchistan.—Forty-three square miles were added to Reserved forests, which have now an area of 175 square miles. The State forests constituted during the year have been settled and rights recorded and defined.

Andamans.—The following areas were declared Reserves:—

Mount Harriet Reserve	45	square miles,
Brigade Creek ,,	3·6	,,

thus bringing the total area of Reserved forests to 73 square miles. Some preliminary work was done towards the reservation of the Dhani Khari forest, which was, however, stopped by want of labour.

Madras.—A considerable amount of progress was made, 680 square miles of forest being settled and finally notified during the year; work done under this head, however, shows a continued decrease since 1892, as follows:—

Area notified under section 16 of the Act.

1892-93	2,261	square miles.
1893-94	1,350	,,
1894-95	680	,,

The progress made is shown by Circles in the following table :—

Circle.	Area in Square Miles, of Reserved Lands.					Area, in square miles, of land brought under Chapter II of the Madras Forest Act.				
	On 1st July 1894.	Added during 1894-95.	Total.	Excluded during the year mainly by reason of constitution as reserved forests.	Balance at the end of the year.	Area notified under section 4 and not constituted reserved forests on 1st July 1895.	Added during 1894-95.	Total.	Constituted reserved forests during 1894-95.	Balance notified under section 4 but not constituted reserved forests.
Northern	2,385	546	2,930	334	2,596	1,907 (a) −3	254	2,158	227	1,931
Central	2,179	374	2,553	369	2,184	1,893 (a) +4 (b) −218	378	2,057	298	1,759
Southern	2,660	77	2,737	193	2,544	1,513 (b) +11	249	1,773	155	1,623
Total	7,224	996	8,220	896	7,324	5,112	881	5,993	680	5,313

(a) By rectification of area. (b) Shown or omitted wrongly in previous year's return.

The total area awaiting settlement on the 1st November 1895 amounted to 8,276 square miles as shown below :—

1. Notified under section 4	5,121	square miles.
2. Area of reserved lands not brought under settlement	1,710	"
3. Further selections (estimated)	1,445	"
Total	8,276	

It is hoped that the settlement work in this Presidency will be completed in from four to five years.

Bombay.—An addition of 675 square miles was made to Reserved forests.

In the Northern Circle, settlement work was confined to the Thana district, the settlement of which district will shortly be completed; as soon as the revised demarcation of the Mandvi taluka of Surat has been finished, the permanent forest area of the Northern Circle will have been determined. In the Central Circle the most important change was the addition of 143 square miles to Reserved forest in West Khandesh. In the Southern Circle large areas in Belgaum and Dharwar were converted from Protected into Reserved forests, and 44 square miles of newly selected land were added to the Reserves. In the Sindh Circle, Forest Settlement work is very nearly completed; 79 square miles were reserved during the year.

III.—Demarcation.

The table given below shows the work done on demarcation during the year, as well as number of miles of boundaries now kept up :—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked Boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year	Expenditure on demarcation during the year.	
									On new work.	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal		81	1,926	99	2,176	83	1,702	3,961	1,231	8,715
North-Western Provinces and Oudh.	Central Circle	6	594	1,908	2,508	...	493	3,001	58	1,063
	Oudh "	50	367	720	1,137	16	297	1,434	2,036	6,966
	School "	12	236	275	523	133	313	974	534	1,447
Punjab		2	1,380	7,087	8,969	4,401	1,105	14,475	374	1,922
Central Provinces	Southern Circle	57	10,485	502	11,044	318	1,121	12,483	396	4,400
	Northern "	59	9,792	606	10,457	47	1,133	11,637	1,123	4,457
Lower Burma	Tenasserim Circle	206	345	1,389	2,039	150	648	2,828	2,290	1,487
	Pegu "	122	218	1,142	1,482	...	754	2,236	1,187	343
Upper "	Eastern Circle	323	...	770	1,093	455	152	1,700	3,295	5
	Western "	320	25	267	612	128	666	1,406	4,066	12
Assam		2	1,120	34	1,156	...	1,364	2,520	16	2,685
Coorg		...	61	...	61	...	...	61	...	1,097
Ajmere		...	1	182	183	...	158	341	...	25
Andamans		8	33	...	41	...	54	95	122	304
Baluchistan		80	72	138	290	...	49	339	176	175
Berar		24	746	352	1,122	10	182	1,314	881	1,570
	Total	1,447	27,971	15,471	44,889	5,741	10,191	60,821	17,685	36,902

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private or other lands within the forests but not the limits of sub-divisions, such as blocks, compartments and coupes.

There are thus kept up 44,889 miles of boundary lines artificially demarcated in the Bengal Presidency, and 5,741 miles still remain undemarcated, of which 4,401 miles are in the Punjab. Form No. 48 showing the progress made in demarcation has not in all cases been correctly prepared. It is noted for future guidance, that columns 2, 3 and 4 should together be equal to column 5, and that columns 5, 6 and 7 should together be equal to column 8. Column 6 is intended to show the amount of work still remaining to be done. When surveys have not been completed, the entries in columns 6 and 7 will be estimates. The forms for the Oudh, Punjab, Eastern and Western Circles of Upper Burma have been incorrectly prepared. In Bombay it would appear from Form No. 48 of the Central and Southern Circles that demarcation work here has been completed, whereas from the information given in the reports themselves it is evident that this is not the case. In the Southern Circle natural boundaries have not been included in the form, whilst for the Sindh Circle no form at all has been submitted. Demarcation work in the various provinces is summarized below :—

Bengal.—The total length of boundaries increased from 3,830 miles to 3,961 miles, chiefly owing to the inclusion of the boundaries of the new Sitakund—Ramgarh Reserve in Chittagong. The total length of natural boundaries not requiring artificial marks has for the same reason risen from 1,677 miles to 1,702 miles; 81 miles of new demarcation were completed. The total expenditure exceeded that for the previous year by R833 ; the average cost for new demarcation work was R15, and for maintenance R4 per mile, against R12 and R4 in the previous year.

North-Western Provinces and Oudh.—In the Central Circle the total length of Forest boundaries increased from 2,997 miles to 3,001 miles, of which 2,508 miles are artificially demarcated. The condition of the outer boundaries is satisfactory, but some doubt exists as to whether village lands are in all cases properly demarcated ; R1,151 were spent on demarcation, of which only R58 were spent on new work, the remainder being used for repairs. In the Oudh Circle there was no change in the total length of boundaries, which remains at 1,434 miles of which 1,137 are demarcated by artificial marks. Considerable progress was made in the erection of monoliths ; and a total expenditure of R9,001 was incurred. In the School Circle a correction of an error brings the total mileage of boundaries to 974 miles as against 978 in the previous year ; 133 miles still appear as undemarcated, but it is explained that this only means that so far no path runs from pillar to pillar. The expenditure incurred was R1,981 of which R534 was spent on new work. The expenditure in the Province was R12,133, of which R9,505 were spent on repairs.

Punjab.—The principal work done consisted in clearing lines of trees and shrubs, repairing existing pillars and erecting new intermediate pillars where necessary. In Chamba the state of the boundary pillars is unsatisfactory ; two new miles of boundary were demarcated ; a total expenditure of R2,296 was incurred.

Central Provinces.—Fifty-seven miles were added to the length of demarcated boundaries in the Southern Circle, and 59 miles in the Northern Circle. A good deal of work still remains in improving the boundaries in tracts where land has been excised for ryotwari settlement particularly in Chanda and Nimar. The preparation of boundary registers is still incomplete in many divisions, R9,057 were spent on repairs and R1,429 on new demarcation work.

Burma.—Demarcation work was carried on with activity in all circles, particularly in Upper Burma, where R3,295 were spent in the Eastern Circle and R4,066 in the Western Circle. The most important forests Aingdôn demarcated were—

Lower Burma, Tenasserim Circle, the Aingdôn Kun Reserve, cost R1,139.

Upper Burma, Eastern Circle, Auktaw, Mohnyin, Nami Reserves, in the Katha Division, cost R1,136. The Nampa, Uya Hatha, Taungbalaung and Setkala Reserves in the Bhamo Division cost R689.

In the Western Circle a large amount of demarcation work was pushed through, 320 miles of new boundaries having been completed at a cost of R4,066. The total length of boundary lines in Upper and Lower Burma now amounts to 8,170 miles.

Assam.—The length of boundaries artificially demarcated fell from 1,191 miles to 1,156 miles, owing to rectification and rearrangement. There was but little new work, only 2 miles being newly demarcated. Existing boundary marks and lines were kept in order at a cost of R2,685.

Coorg.—There was no new demarcation work; clearances on the existing 61 miles of boundary lines cost R1,097. The question of the most suitable boundary marks for this province, where wild elephants often destroy them, received attention.

Ajmere.—There was no new work; R25 only were spent on repairs.

Andamans.—Eight miles of new line were demarcated costing R122; 33 miles of existing boundary were cleared at an expenditure of R304.

Baluchistan.—The boundaries of all the State forests in this Agency have been demarcated; 80 miles of boundaries were artificially demarcated during the year, *viz.* the newly-acquired Surghand forest, the Kachmangi forest, and the Gohar forest; R175 were spent on repairs.

Berar.—Twenty-four miles of new lines were demarcated, and existing boundaries kept in order at a cost of R2,451. The boundaries of forests of classes A. and B. are in good order; in class C, they are reported to be in fair order.

Madras.—A large amount of demarcation work was carried out, no less than 2,271 miles of permanent demarcation having been completed during the year at a cost of R20,562, or an average cost of R9-0-10 per square mile. The heaviest work took place in the Central Circle, where 1,542 miles were demarcated; 3,221 miles of preliminary demarcation was also carried out at an expenditure of R7,475. The total expenditure on all kinds of demarcation amounted to R37,874.

Bombay.—Demarcation work did not receive as much attention as the Government of Bombay would have wished. Still 1,036 miles of lines were cleared at a cost of R11,928. In the Northern Circle 105 miles cost R3,157, or a high average of R30 a mile. For Sindh no details are available.

Demarcation work, therefore, throughout India was on the whole energetically pushed on; and the total length of boundary lines in provinces under the Government of India amounted at the close of the year to the large total of 60,821 miles as against 59,958 miles at the close of the year 1893-94.

IV.—Surveys.

The total area topographically surveyed on various scales during 1894-95 amounted to 4,510* square miles, of which 1,898* square miles was surveyed by the Forest Survey Branch and 2,612 square miles by the Survey of India Department. The area surveyed in the preceding year was 4,275 (*a*) square miles, and 4,081 (*b*) square miles were surveyed during 1892-93. Forest Survey operations, during the year under review, were carried on by four parties of the Survey of India Department, as well as by the Forest Survey Branch, and a small area of forest lands was also surveyed by the Himalaya Survey party. The following tabulated statement shows the areas operated on in the several provinces under the Government of India, as well as in Madras and Bombay, and gives the scales of the surveys, as well as the cost-rates of each branch of the work. The area surveyed is in excess of that of any previous year, and even a more satisfactory feature in the year's operations is the reduction in the cost-rate per square mile of forest area surveyed. These satisfactory results are in most cases due to the gradual introduction of a cheaper agency, and the spreading of the cost of supervision over larger areas. The usual classification of forest growth and soils was carried out over all areas surveyed in detail.

* Includes 282 square miles in Bashahr which were surveyed for topographical purposes.

(*a*) Includes 287 square miles of Bashahr topographical survey.

(*b*) Includes 630 square miles of Bashahr topographical survey.

AREAS SURVEYED AND COST-RATE PER SQUARE MILE.

Presidency or Province.	Triangulation.				Traversing.				Detail survey and preparation of maps on scale of																Total Topographical Surveys.		Total Expenditure. 1894-95.	
	1894-95.		1893-94.		1894-95.		1893-94.		1″ = 1 mile.				2″ = 1 mile.				4″ = 1 mile				8″ = 1 mile				16″ = 1 mile.							
									1894-95.		1893-94.		1894-95.		1893-94.		1894-95.		1893-94.		1894-95.		1893-94.		1894-95.		1893-94.		1894-95.	1893-94.	Forest Survey Branch.	Survey of India Department.
	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m	R	Sq. m.	R	Sq m.	R	Sq. m.	Sq. m.	R	R
North-Western Provinces and Oudh *	247	9	...	...	507	(a) 7	496	4	...	...	...	...	...	...	...	...	473	26	356	13	...	...	...	...	...	...	...	...	473	356	(b) 20,690	...
Punjab *	761	8	...	...	...	...	...	...	282	24	287	19	...	...	...	...	14	60	123	50	...	...	...	...	...	...	...	...	296	410	(c) 14,997	...
	229	14	161	9	...	...	...	...	...	...	...	...	...	...	...	...	229	68	194	82	...	...	...	...	...	...	...	...	229	194	...	18,823
Central Provinces. *	933	9	1,428	6	(g) 143	12	52	16	...	...	...	...	...	...	...	...	712	49	597	54	...	...	...	...	146	(d) 49	111	54	858	703	(f) 57,39	...
	2,163	9	864	17	(e) 1,252	12	867	17	...	...	...	...	...	...	...	...	569	67	565	89	...	...	...	...	...	...	...	...	569	565	...	(h) 35,252
Burma *	...	...	322	12	(e) 51	26	440	10	...	...	...	...	...	...	...	...	271	89	246	91	...	...	...	...	...	...	...	...	271	246	26,089	...
	440	80	420	36	500	94	420	133	...	...	...	...	36	179	144	87	339	153	282	159	...	...	...	...	...	...	...	...	375	426	...	118,859
Madras	1,918	10	2,000	11	(e) 850	10	620	11	...	...	...	...	...	...	...	...	971	56	881	61	...	...	...	...	...	...	...	...	971	881	...	75,803
Bombay	1,080	11	465	10	275	11	250	12	...	...	...	...	...	...	...	...	159	81	202	84	235	140	222	156	24	117	65	179	468	489	...	70,683
Total	7,771	...	5,860	...	3,578	...	3,145	...	282	...	287	...	36	...	144	...	3,737	...	3,446	...	235	...	223	...	170	...	176	...	4,510	4,276	119,169	369,419
																																488,588

* Surveys executed by the Forest Survey Branch, the topographical cost-rates of which include expenditure in classification of forests and soils; the other surveys are by the Survey of India Department.

(a) Exclusive of 121 linear miles of levelling at R6 per mile.
(b) Includes R1,894 on account of printing and publishing of the maps of Pilibhit and Kheri Divisions previously surveyed.
(c) Includes R1,220 on account of drawing and publishing charges of Bashahr maps and R275 spent on a small area of 5 square miles which was surveyed on 4″ scale in Bashahr.
(d) Average cost of both 4″ and 16″ surveys.
(e) Linear miles.
(f) Includes R5,217 expended in drawing and publishing maps of Jubbulpur and Bhandara.
(g) Includes 135 linear miles of levelling.
(h) Includes R700 expended on instruction of soldier surveyors.

Reg. No. 400, Supdt. Forests.—Sept. 20—200

Litho., S. I. O., Calcutta.

The total expenditure incurred on Provincial forest surveys by the Forest Survey Branch was ₹1,19,169, and the Survey of India Department expended ₹3,69,419, making a total expenditure for the year of ₹4,88,588 against an expenditure of ₹4,96,637 in the previous year.

The following tabulated statement shows the forest areas operated on since 1873-74 and up to the close of the year under review. Excluding 2,319 square miles surveyed in the Punjab to complete the topographical map of the Bashahr State, a total aggregate area of 31,101 square miles has been surveyed for forest purposes. The map which is attached shows at a glance the localities of the tracts that have already been operated on and those which still remain to be brought under survey by professional agency.

Survey year.	Bengal		North-Western Provinces and Oudh				Punjab		Central Provinces		Burma		Assam	Berar		Madras	Bombay			By Forest Survey Branch.	By Survey of India Department.	Total.
	Scale		Scale				Scale		Scale		Scale		Scale	Scale		Scale	Scale					
	4"	2"	12"	8"	4"	2"	4"	1"	16"	4"	4"	2"	4"	4"	2"	4"	16"	8"	4"			
1873-74*	...	...	...	...	145	...	...	...	...	...	...	...	...	...	...	...	...	...	...	145	...	145
1874-75*	...	...	...	...	288	...	...	...	...	...	...	...	...	...	...	...	...	...	...	288	...	288
1875-76*	...	...	...	...	313	...	...	...	...	...	...	...	...	...	...	...	...	...	...	313	...	313
1876-77*	...	...	...	...	211	...	...	...	...	...	...	...	...	...	...	...	...	...	...	211	...	211
1877-78*	...	...	...	...	327	...	...	...	...	...	...	...	...	...	...	...	...	...	...	327	...	327
1878-79*	...	...	3	...	343	...	...	...	...	...	...	...	...	...	...	...	...	...	...	346	...	346
1879-80*	...	...	...	...	318	...	...	...	...	...	...	...	...	...	...	...	...	...	...	318	...	318
1880-81*	...	...	...	...	260	...	...	...	...	...	...	...	...	...	...	...	...	...	...	260	...	260
1881-82*	...	...	...	...	179	27	...	...	...	...	...	...	...	59	...	...	...	...	...	265	...	265
1882-83 *	...	...	...	...	300	...	...	...	...	...	...	...	...	61	...	...	...	...	...	361	...	410
	...	...	...	...	...	...	...	...	...	...	49	...	...	...	...	...	...	...	...	...	49	
1883-84 *	...	...	...	...	53	...	...	...	...	...	...	...	...	21	...	...	...	...	...	74	...	333
	...	...	...	...	...	...	...	...	...	...	211	53	...	...	...	...	...	...	...	...	264	
1884-85 *	...	...	...	...	35	...	...	...	...	...	...	...	...	168	207	...	...	...	...	410	...	761
	...	...	...	...	...	...	...	...	...	...	314	37	...	...	...	...	...	...	...	...	351	
1885-86 *	61	...	...	...	...	...	143	...	...	...	...	...	...	162	241	...	...	...	...	607	...	937
	...	...	...	...	...	...	...	...	...	...	199	131	...	...	...	...	...	...	...	...	330	
1886-87 *	54	...	...	...	37	178	174	...	...	...	...	...	...	253	217	...	...	...	...	903	...	1,065
	...	...	...	28	...	...	35	...	...	...	46	...	...	...	...	...	...	53	...	...	142	
1887-88 *	...	...	...	...	32	...	71	...	...	116	...	...	...	297	553	...	...	...	...	979	...	2,023
	36	...	...	141	...	...	63	...	...	64	246	93	...	...	...	8	...	398	...	...	1,044	
1888-89	...	...	...	...	38	...	215	...	32	359	...	...	...	5	3	...	...	...	...	652	...	2,525
	...	215	...	...	159	...	59	...	...	309	150	162	...	...	...	166	...	22	633	...	1,876	
1889-90 *	...	...	...	...	41	...	196	302	76	419	...	...	...	...	...	...	...	...	...	1,030	...	2,732
	...	..	...	46	300	...	47	...	...	405	169	...	...	...	...	214	19	335	153	...	1,693	
1890-91 *	...	...	...	...	...	...	158	463	108	483	...	...	180	...	...	...	...	...	...	1,382	...	3,460
	174	...	...	...	35	...	33	...	...	461	167	204	...	...	...	465	22	393	124	...	2,078	
1891-92 *	...	...	...	...	...	...	160	368	139	477	128	...	307	...	...	...	...	...	...	1,456	...	3,356
	327	...	...	...	...	...	70	...	....	483	226	68	...	...	...	659	40	202	195	...	2,270	
1892-93 *	...	...	...	...	251	...	124	630	80	482	104	7	126	...	...	...	...	...	...	1,804	...	4,081
	...	...	...	...	...	...	107	...	...	628	214	113	...	...	...	783	22	185	220	...	2,277	
1893-94 *	...	...	...	...	356	...	123	297	111	597	246	...	...	...	...	...	...	...	...	1,720	...	4,276
	..	..	...	...	...	...	191	...	...	565	282	144	...	...	...	851	65	223	203	...	2,555	
1894-95 *	...	...	...	...	473	...	14	282	146	712	271	...	...	...	...	...	...	...	...	1,893	...	4,510
	...	...	...	...	...	...	229	...	...	569	339	36	...	...	...	971	24	285	159	...	2,612	
Total	652	215	3	215	4,494	205	2,197	2,319	696	7,128	3,361	1,053	613	936	1,221	4,164	192	2,093	1,691	15,579(c)	17,541	33,120(c)
	867		4,907				4,516		7,824		4,414		613	2,157		4,164	3,978			15,579	17,541	33,120

* Surveys executed by the Forest Survey Branch; the other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor General.

(c) Includes an area of 2,319 square miles on the 1" scale surveyed for topographical purposes.

It may here be observed that Form No. 49, which is intended to show the progress made in the survey of forest area, is very differently, and often inaccurately drawn up in the various provinces. It is noted, for future guidance in the preparation of this form, that the totals of columns 2, 3, 4, 5, 10, 11, 12, 13, 18, 19, 20, 21, should show the work done up to date, and that this, *plus* column 26 (work remaining to be done) should equal the total forest area as shown in column 27. Boundary surveys made should not be taken into account in calculating the correct figure to enter in column 26. Amongst the forms No. 49 accompanying the reports for 1894-95, those for the following circles only have been correctly prepared :—

North-Western Provinces (Central and School Circles).

Central Provinces (Southern Circle, save for an omission of 23 acres in column 26).

Baluchistan.

Bombay (Central Circle).

Work done in the various provinces during the year was as follows :—

Bengal.—No surveys were undertaken by professional agency ; but some petty operations, in the way of boundary and coupe surveys, were done departmentally at a cost of R84.

North-Western Provinces and Oudh.—The principal survey operations were those conducted by the Forest Survey Branch in the Gonda and Bahraich Districts of the Oudh Circle, and in the Lalitpur Range of the Bundelkhand Division of the Central Circle. In the Oudh Circle 358 square miles were topographically surveyed on the 4-inch scale at a cost of R17 per square mile, and 115 square miles were completed on a similar scale in the Lalitpur forests at a cost of R55 per square mile, or an average of R26 per square mile for the entire area operated on. Triangulation was extended over 247 square miles in the Lalitpur Range at a cost of R9 per square mile, and an area of 507 square miles was traversed in Oudh at R7 per square mile. In the Central Circle out of a total area of 1,839 square miles, only about 35 square miles remained unsurveyed at the close of the year ; and every division in this Circle, except Bundelkhand, now possesses a complete set of Forest Survey maps. The Jhansi forests in the Bundelkhand Division were surveyed by the Survey of India Department in about 1887-88, but the Conservator remarks that he has not yet been supplied with copies of the maps of these forests. In the Oudh Circle, the area which remained unsurveyed at the end of the year amounted to 300 square miles, this, however, is undergoing survey and should be completed by the end of 1896. The alignment of the Kheri forest boundary touching on Nepal also remains to be done, and until a final decision is arrived at regarding the correct lie of this boundary, the publication of the Kheri forest maps is held in abeyance. In the School Circle no surveys, beyond a few boundary surveys, by departmental agency, were undertaken and, with the exception of a small area of 2 square miles which remained to be mapped at the close of the year, the circle possesses a complete set of forest maps.

Punjab.—By the double agency of the Forest Survey Branch and No. 18 Party of the Survey of India Department a total area of 525 square miles was surveyed in detail. Of this area 243 square miles were done on the 4-inch scale for forest purposes and 282 square miles were done on the 1-inch scale to complete the standard topographical maps. The 4-inch detail survey comprised 241 forest blocks in Kangra, Nurpur, Kulu, Sirmur, Kalsia, and Patiala at a cost-rate of R68 per square mile, and 14 square miles of leased forest in Bashahr and Chamba at a cost-rate of R60 per square mile. The 1-inch detail topographical survey cost R24 per square mile and the survey of the Basbahr State was brought to a close. In addition, the Forest Survey Branch extended triangulation in advance over an area of 761 square miles in the Chamba State. The Conservator of Forests remarks that it is to be regretted that the unclassed forests in Bashahr have not been shown on the maps ; this, of course, is due to this class of forests not having been demarcated at time of survey, and it has been reported that the local authorities have no intention of demarcating them.

Central Provinces.—Party No. 14 of the Survey of India Department, as well as the Forest Survey Branch, were employed, in continuation of the previous season's operations, on forest surveys in the Central Provinces. The operations of the former party were confined to the districts of Nimar, Betul and Damoh, and an area of 569 square miles on the 4-inch scale was completed at a cost-rate of R67 per square mile which is considerably less than the cost-rate of

the previous season, but this rate does not include the expenditure on the classification of forests and soil records which cost an additional R10 per square mile, nor does it include the expenditure on arrears of mapping and computations. In addition to the detail survey on 4-inch scale triangulation and traversing were extended in the Betul and Damoh districts affording a large area prepared in advance for final topography. The detail survey of the forests in the Nimar District was brought to a close.

The Forest Survey Branch extended their operations in the districts of (I) Nagpur with Seoni and Chindwara, (II) Narsingpur and Saugor, (III) Raipur, and (IV) Balaghat, and completed an aggregate area of detail survey, on the 4-inch and 16-inch scales, of 858 square miles at an average cost rate of R49 per square mile, including the cost of preparing the usual forest and soil records and the mapping and computations connected with the work. In addition to the detail survey, triangulation and traversing were extended in advance, and levelling operations were carried on in certain tracts to afford a basis for the instrumental contours that were run throughout the detail survey. The total area of detail survey executed by the double agency of the Forest Survey Branch and the Survey of India Department amounts to 1,427 square miles, against 1,273 square miles completed in the previous year.

Burma.—Professional survey parties were at work in both Upper and Lower Burma during the year. No. 20 Party of the Survey of India Department were employed on the survey of the Reserves in the Hanthawaddy and Pegu Districts, and parties of the Forest Survey Branch were engaged in surveying the Reserves in the Pyinmana and Salween Divisions. The former party completed an area of 339 square miles of detail survey, on the 4-inch scale, at a cost-rate of R153 per square mile, and 36 square miles on the 2-inch scale at R179 per square mile. The higher cost-rate for the smaller scale survey is said to be due to the fact that the survey on the 2-inch scale was performed by European agency. The year's outturn of detail survey on the 4-inch scale by the Forest Survey Branch was 271 square miles, at a cost-rate of R89 per square mile. The total outturn for the year of detail survey by the Forest Survey Branch and the Survey of India party combined was 646 square miles against 672 square miles in the previous year. The progress made is admitted to be satisfactory and at the end of the year the completed area aggregated 4,414 square miles. These figures are taken from the preceding tabulated statement showing the details of forest survey operations from 1873 to 1895.

In addition to the operations of the professional survey parties a vast amount of useful survey work has been done by the local forest staff in the way of compass traversing of forest boundaries, preliminary sketches of important forests, etc., and in the Western Circle the local officers have surveyed and prepared practically useful maps of 446 square miles which has attracted the favourable attention of the Government of India. These surveys are of special utility, although they have no pretensions to great accuracy, and as they are accompanied by linear valuation-surveys they form a sufficient basis for at least preliminary working plans.

Assam.—No new surveys were undertaken by professional agency, but the Forest Survey Branch has mapped, on the 4-inch scale, 613 square miles of the principal sál tracts in the Goalpara Division, and the local officers have been supplied with complete sets of these maps. There still remains (*vide* Form No. 49) an area of 2,378 square miles of reserved forests to be taken under survey. Some minor surveys were done locally in the Sibsagar and Garo Hills Divisions at a cost of R190.

Coorg.—A small area of 83 square miles was surveyed by local agency at a cost of R47 per square mile. The survey consisted of the measurements of compartments and coupes according to the working-plans, as well as a rough classification of the different groups of important forest trees according to soil and species; but as it was found that the work was of a nature capable of being done by the local staff of Rangers, the services of the survey party have been dispensed with. Form No. 49 shows an area of 23 square miles as having been surveyed by professional agency, but no mention is made of this in the survey report.

Ajmere.—Nothing in the way of surveys was done.

Andamans.—Valuation-surveys were carried on in the North Andamans round Stewart Sound and a total length of 30 miles was measured, the object being to collect information regarding the value of the forests with a view to the possibility of working them by private enterprise. Sample areas to the extent of 764 acres were also counted over and the general results agreed very closely with those obtained in former years.

Berar.—Local surveys were undertaken in the Melghat Taluk and R464 spent in completing the survey of forest villages and in entering 157 miles of new road on the existing maps, and considerable progress has been made in preparing and publishing 1-inch taluk maps which, when complete for the 22 taluks, will be most valuable for forest purposes, and especially in connection with the grazing question under the new rules.

Baluchistan.—Beyond a survey of the Khushdil Khan lands and a series of levels by the Public Works Department as a basis for an irrigation scheme, which was subsequently abandoned, there is nothing to record under the head of surveys.

Madras.—In continuation of the operations of the previous year No. 19 Party of the Survey of India Department were at work in the Salem, North Arcot, and South Arcot Districts. The area surveyed in detail on the 4-inch scale amounts to 971 square miles which is 90 square miles in excess of that of last year and is the largest outturn yet secured by the party in one year. The cost-rate is also proportionally lower, being R56 per square mile against R61 in the previous year. A large amount of triangulation and traversing was also done in advance of next season's operations. The total aggregate area surveyed up to the close of season 1894-95 amounts to 4,154 square miles, but it is not clear whether the whole of this area can be reckoned as forest as, included in it, there are numerous hill villages with a considerable area of cultivation, and in the Javadi range cultivated lands of all classes, both on the hills and in the valleys intervening, have been surveyed.

In connection with the selection and settlement of reserves a separate staff of surveyors and draughtsmen was employed departmentally. The departmental agency has, up to the 30th June 1895, prepared final maps of an aggregate area, in all districts, of 6,159 square miles of reserved forests

Bombay.—During the year under review No. 17 Party of the Survey of India Department was employed upon forest surveys in all three circles. The work comprised surveys on the 16-inch scale of *babul* reserves in the Poona and Ahmednagar Districts; on the 8-inch scale of teak reserves in North Thana, Poona and Ahmednagar Districts; and on the 4-inch scale of ordinary reserves in the Poona and North Kanara Districts. The total outturn of work for the year, on the several scales, amounts to 468 square miles, and the cost-rates for each class of detail survey, as given by the Survey Department, are as follows :—

4-INCH SCALE.		8-INCH SCALE.		16-INCH SCALE.	
Area.	Cost-rate.	Area	Cost-rate.	Area.	Cost-rate.
	R		R		R
159	81	285	140	24	117

The cost rates in each class of detail survey are less than in the previous year, and it is expected that they may be still further reduced by an increase to the establishment of native surveyors.

The areas surveyed in each circle are given in the following statement :—

Forest Circle.	4-INCH SCALE.		8-INCH SCALE.		16-INCH SCALE.	
	Area.	Cost-rate.	Area.	Cost-rate.	Area.	Cost-rate.
		R		R		R
Northern . .	—	—	56	176	—	—
Central . .	159	81	113	111	24	117
Southern . .	—	—	117	186	—	—

The cost-rates for the 8-inch surveys, as must be expected, varies in the different circles; but when an average is struck by dividing the total expenditure by the total area surveyed, it shows a rate of R140 per square mile as given by the Survey Department. A noticeable feature in the cost-rates of the 16-inch surveys is that they were done far cheaper than the smaller scale surveys on the 8-inch scale, and this fact is said to be due to the work having been done entirely by native agency in the absence of European supervision. The cost-rate of 16-inch surveys during the previous year was R179 per square mile, and in 1892-93 it was R190 per square mile.

In Sindh topographical sheets of the Indus Riverain Survey are being gradually supplied for the riparian forest tracts; these maps will doubtless afford an accurate basis to prepare working schemes on sound sylvicultural principles.

V.—Working-Plans.

It was noticed in the review for the year 1893-94, that Form No. 50, showing the progress made in bringing forests under the provisions of regularly sanctioned plans, had not been uniformly prepared in all provinces, and this is again noticeable in the returns furnished for the year under review. Columns 2 and 3 of this form are intended to show the area for which regular working-plans, drawn up and sanctioned by the Local Government in accordance with the provisions of the Forest Code, have been completed. It is incorrect and misleading to enter in these columns areas for which plans have not been sanctioned, as has been done in Form 50 for the Northern Circle of the Central Provinces and for Berar. Areas for which working-plans have been compiled should, until such plans have been formally sanctioned, be entered in columns 4 or 5 of the form.

The following three statements show, for the provinces under the Government of India, (A) the area brought under working-plans up to the close of the year, (B) the progress made in the preparation of plans during the year and (C) a comparison of work done with that still to be undertaken.

A.

Areas brought under the control of sanctioned Working-Plans up to 30th June 1895 in the provinces under the Government of India.

Province. (1)	Forest Area, in square miles. Reserved. (2)	Protected. (3)	Unclassed State. (4)	Total. (5)	Area for which Working-Plans prepared and sanctioned up to 30th June. (6)	Proportion of Forest area under sanctioned Working-Plans. (7)
					Sq. ms.	Per cent.
Bengal	5,839	3,091	4,034	12,964	4,378	34
North-Western Provinces and Oudh	3,765	94	44	3,903	2,249	58
Punjab	1,677	285	3,995	15,957	539*	9
Central Provinces	19,542	...	390	19,932	431	2
Burma (Lower)	7,071	...	...	7,071	1,019	14
„ (Upper)	4,408	...	...	4,408	...	...
Assam	3,716	...	13,912	17,628	533	3
Coorg	238	655	...	893	116	13
Ajmere	139	...	10	149	139	93
Baluchistan	175	...	...	175	...	...
Andamans	73	...	1,882	1,955	...	...
Berar	4,179	...	...	4,179	19	0·4
Total	50,822	4,125	24,267	79,214	9,423	12

* In 1893-94 this was shown as 540. It has now been reduced by one square mile owing to rectification.

N.B.—For explanation of the figures in columns 2 to 5 please see the remarks column of the area statement in page 2.

B.

Progress made in Working-Plans in the provinces under the Government of India during 1894-95.

1	2		3		4	
Province.	Preliminary proposals submitted for Working-Plans.		Plans submitted for opinion and remarks of Inspector General of Forests.		Plans finally sanctioned by Local Governments on recommendations of Inspector General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
		Square miles.		Square miles.		Square miles.
North-Western Provinces and Oudh	1	(*a*)401	5	(*b*)766	3	(*b*)648
Punjab	1	(*c*)7	3	(*g*)122	...	...
Central Provinces (Southern Circle)*	21	2,974	8	678	4	431
Burma (Lower)	...	...	2	332	...	...
Assam	...	...	1	522	1	522
Berar	...	...	1	702	...	...
Coorg	...	...	...	...	1	20
Baluchistan	2	(*d*)5	...	...	...	...
Andamans	1	(*e*)1,955	...	...	...	...
Ajmere	...	..	...	...	1	(*f*)139
Total	26	5,342	20	3,122	10	1,760

(*a*) Includes 254 square miles of old working-plans now being revised.
(*b*) Includes 90 square miles of old working-plans now revised; the actual progress under column (4) was therefore 558 square miles for new areas.
(*c*) Old working-plans being revised.
(*d*) Represents area of the Shebo and Kushdil Khan plantations which it is proposed to abandon for forest purposes.
(*e*) Preparation of working-plans postponed indefinitely.
(*f*) Under revision.
(*g*) Includes 118 square miles of old working-plans under revision.

* The areas for the forests in the Central Provinces are subject to revision. For the Northern Circle 35 working-plan reports aggregating an area of 841 square miles were received during the year, but they have not been treated as regular plans under the Forest Department Code and have not therefore been included in this table.

C.

Progress made in Working-Plans during 1894-95.

Province.	Areas for which Working Plans have been completed.		Areas for which Working-Plans are being completed.		Areas for which Working-Plans have still to be taken in hand.	Total forest area as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	* Sanctioned.
Bengal	*4,378	...	225	183	8,178	12,964	(a) Excludes 113 square miles (Palain Kothri working-plan) now being revised and included in a new plan for the Ganges Forest Division. Area at present shown in column 2, though plan ceased to be in force from 1894-95.
North-Western Provinces and Oudh. — Central Circle	*494	(b)*407	427	(a)297	214	1,839	(b) Excludes 90 square miles of the Sandhaur working-plan which has been revised and already accounted for in column 2.
North-Western Provinces and Oudh. — Oudh ,,	*770	*151	186	...	136	1,243	(c) Not yet sanctioned. Includes area revised during the year.
North-Western Provinces and Oudh. — School ,,	*427	...	297	...	97	821	(d) Not sanctioned.
Punjab	*539	...	739	719	3,960	5,957	(e) Includes the area of B I Class and unclassed State forests, 2,867 square miles.
Central Provinces. — Northern Circle	(c)973	(d)31	160	2,297	(e)6,703	10,074	(f) Only 211 (West Perch 116, Bhilari-Ghagwa 2, and Umrer 93) square miles sanctioned in 1894-95.
Central Provinces. — Southern ,,	*220	(f)482	583	3,069	(g)4,504	9,858	(g) Includes 2,630 square miles for which plans are not required.
Burma (Lower) — Pegu Circle	*1,019	...	...	...	1,919	2,938	(h) Includes 12,912 square miles of unclassed forest for which working-plans are not required at present.
Burma (Lower) — Tenasserim Circle	...	(d)985	...	...	3,748	4,133	(i) Only 19 square miles sanctioned. These figures apparently include areas under "plans of operations" which is incorrect.
,, (Upper) — Eastern Circle	...	...	...	37	§11,707	§11,744	(j) 702 square miles (Bairagarh and Gugamali sanctioned in 1895-96.
,, (Upper) — Western ,,	...	...	...	...	§16,471	§16,471	§Only 5,634 sanctioned up to the end of 1894-95.
Assam	*533	...	...	...	(h)17,095	‡7,628	‡Only 769 ,, ,, ,,
Berar	(i)991	(j)857	1,018	204	¶1,109	¶4,179	Total 9,423
Coorg	*116	(d)28	5	...	744	893	¶ Includes 9,317 and 14,360 square miles respectively, of forests which have been afforded protection under the Regulations as a preliminary to being reserved.
Baluchistan	...	...	...	4	171	175	Includes the areas referred to in footnoted.
Andamans	...	...	...	...	1,955	1,955	¶ The Conservator states that these figures represent area of forests as scaled and therefore they will not compare with figures in Form No. 46.
Ajmere	*139	...	...	...	10	149	
Total Bengal Presidency	†10,599	12,341	3,640	7,720	78,721	‖108,021	
Bombay Presidency — Southern Circle	569	...	54	165	906	1,634	
Bombay Presidency — Northern ,,	272	119	132	139	690	¶1,282	
Bombay Presidency — Central ,,	844	84	45	178	5,166	6,317	
Bombay Presidency — Sindh ,,	...	...	...	...	...	...	Form No. 50 not received.
Madras Presidency	...	...	...	...	...	...	Statements in Form No. 50 not received.

NOTE.—This statement is compiled from the returns furnished in Form 50. The remarks column explains how far plans for the areas entered have been sanctioned.

From the above it may be observed that during the year ten working-plans, dealing with an area of 1,760 square miles, were sanctioned, and that the area under regular systematized working stood at 9,423 square miles, or 12 per cent. of the forest area, at the close of the year. Large areas remain to be dealt with, especially in Bengal, Punjab, the Central Provinces, Upper Burma, and Assam. A considerable proportion of these areas consist of forests in which, owing to the absence of markets, the production is far in excess of the demand, and in such cases the preparation of working-plans, though desirable, is not a work of immediate necessity. On the other hand wherever there is a steady demand, and more especially where this approaches the production of the forests, the introduction of plans of working defining the main objects with which the estates are to be worked and the amounts of forest produce which can safely be utilized is of the greatest importance.

With regard to the control of existing working-plans, it may be said that year by year as what is required becomes better understood, the plans prepared become clearer and more practical in their provisions, and that more and more

attention and care is exercised in carrying them out. During the year under review, generally speaking, the provisions of existing plans were well carried out. When deviations occurred through force of circumstances, these were reported to, and sanctioned by, the Local Government concerned. It may here be noticed that as the number of plans increases, and this is taking place with rapidity, the work of controlling them becomes more laborious; and the time will sooner or later arise when the control of working must be placed more directly in the hands of Conservators.

Details of work done in the various Provinces is summarised below:—

Bengal.—No plans were completed during the year; and the area covered by sanctioned working-plans remained the same as in 1893-94, *viz.*, 4,378 square miles. Some progress was made in the collection of data for a plan for the Jalpaiguri Division. In this Circle much remains to be done under this head, there being 8,148 square miles for which plans still require to be taken in hand.

North-Western Provinces and Oudh.—In the Central Circle, the working-plan for the Kumaun Division was sanctioned bringing the area under sanctioned working-plans to 901 square miles. The field work of Working-Plans for the Garhwal and Ganges Divisions was nearly completed at the close of the year, and there remains only an area of 214 square miles in Bundelkhand for which working-plans have not been introduced. Working-plans were also prepared for the Naini Tal Municipal forests and in 1893-94 for the Naini Tal Cantonment Forests. The former came into force from October 1895, and, with regard to the latter, negotiations were in progress with the military authorities which will, it is hoped, lead to its being applied. R18,266 were spent on working-plans during the year.

In the Oudh Circle the Bhia working-plan for 151 square miles was sanctioned, whilst plans for the Kanjaria, Chakia Charda and Philibhit forests, covering an area of 324 square miles, were nearing completion. Only 136 square miles in Gonda will thus remain unprovided with working-plans.

In the School Circle no new plans were sanctioned. The field work for the plan for the Saharanpore Division was completed, and the plan is expected to be finished shortly. The area under working-plans remains at 427 square miles.

Panjab.—No new plans were sanctioned during the year. Plans were under preparation for the Khanpur, Kaghan, Kalachitta, Dalhousie, Upper Ravi, Kangra, Kulu, Multan, Montgomery and Municipal and Simla catchment-area forests. There still remains an area of 3,960 square miles in this Circle, for which plans have not been commenced.

Central Provinces.—The remarks made by the Chief Commissioner in his Resolution on the forest administration report may with advantage be repeated:—

"In the Northern Circle plans were completed for a large area of 1,000 square miles, but owing to an unfortunate misunderstanding on the part of the Conservator the plans were submitted in a complete form for the Chief Commissioner's orders before they had been subjected to the criticism of the Inspector General of Forests and the opinions of the local officers. This error of procedure on the part of the Conservator is to be regretted because of the delay which has resulted in the final completion and approval of these plans, and some additional expense will be entailed in their revision; but the Chief Commissioner is satisfied that the changes in them which it will be necessary to make will for the most part be changes of detail rather than principle, and that their *ad-interim* adoption as preliminary working-plans will at all events ensure that the areas to which they relate will be systematically managed, and this is after all the main consideration. In addition to these, preliminary plans have been completed for another large area of 2,367 square miles.

"In respect of these the necessary procedure must be strictly complied with.

"The following table exhibits the progress made in the preparation and completion of working-plans in both Circles:—

	Southern Circle.	Northern Circle.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.
Total area for which plans will have to be prepared	7,226	7,988	15,214
Area for which preliminary working-plans have been prepared	3,749	2,367	6,116
Area for which complete working-plans have been prepared	703	1,004	1,707
Balance remaining	2,774	4,617	7,391

"About half of the task of preparation of working-plans may then be said to be within reasonable distance of completion, and the table shows that more progress can now be taken credit for by the Southern than the Northern Circle, especially as the completed area in the former Circle has been passed by the Inspector-General of Forests, while the area shown as completed in the Northern Circle has as yet not been fully criticised by that officer.

"However, as already mentioned, the main consideration is that over nearly 8,000 square miles methodical management is in full practical operation."

The returns furnished by the Northern Circle in Form No. 50 are, however, misleading, inasmuch as no plans for this Circle have been yet formally sanctioned.

In Lower Burma no plans were sanctioned during the year, but those for the Bondaung and Kabaung reserves were completed, and sanction was accorded to them in July 1895; the area under regular plans stood at 1,019 square miles at the end of the year, leaving 1,919 square miles in Pegu and 3,748 square miles in Tenasserim still to be dealt with. In Upper Burma no working-plans have as yet been framed; but some progress has already been made in the preliminary examination of forests, and in linear valuation surveys which were undertaken over 4,236 acres in the Eastern Circle and over 1,466 acres in the Western Circle during the year. A preliminary working-plan was drawn up for the Mohnyin reserve in the Katha Division. Eleven thousand seven hundred and seven square miles in the Eastern Circle and 16,471 square miles in the Western Circle have still to be dealt with.

Assam.—There were no new plans framed during the year, but the plan for the Goalpara forests was sanctioned. In this Province out of a total forest area of 17,628 square miles, only 532 square miles are under the provisions of working-plans.

Coorg.—The working-plan for the Anekadu-Attur forests was sanctioned during the year, and a preliminary plan for the Devamachi-Mawkál block of forest was practically completed. Of the reserved forests in Coorg, nearly half the area is now under working-plans.

Baluchistan.—In Baluchistan there are as yet no working-plans in force. A plan for the Shibu plantation was under preparation. The area of reserved forests now stands at 175 square miles, and the preparation of a plan or plans under which the future management of this area will be discussed and defined will, it is hoped, be shortly undertaken.

Andamans.—There are no sanctioned working-plans in the Andamans. Preliminary proposals were submitted to the Inspector-General of Forests, but owing to the scarcity of labour the work of collecting data for the proposed plan was unavoidably postponed.

Ajmere.—A working-plan dealing with all the reserved forests was completed and submitted to the Inspector-General of Forests for orders. Some modifications were found necessary and the plan was returned for revision.

Berar.—Much important work was done. Working-plans, covering an area of 857 square miles, were completed during the year, and further plans (of which that for 702 square miles was sanctioned during 1895-96) covering an area of 1,222 square miles are reported to be under compilation. There is considerable confusion in the returns given in Form 50, which shows 991 square miles already under working-plans, whereas plans have only been actually sanctioned for 19 square miles. In columns 2 and 3 of Form 50, only such plans should be entered as have been formally sanctioned by Government in accordance with the Forest Department Code. It is not known how far the area of 1,222 square miles for which plans are shown as under compilation is being examined with the view of preparing regular working-plans. This incorrect manner of preparing Form 50 was pointed out in the review for 1893-94, but it has not been rectified.

Madras.—But little progress can be recorded. The collection of data for future plans was continued. It was hoped that good progress would be made in the framing of simple working-plans during the year 1895-96, but until settlement work is complete and a more adequate establishment is sanctioned the subject cannot, it is reported, be taken seriously in hand. In this connection attention is invited to the remarks made in the review for 1893-94 which may with advantage be here repeated:—

"Conditions, however, such as at present obtain in Madras, prevail in Burma and in the Central Provinces, where it is found practicable to develope organised working under regular plans concurrently with settlement and other operations. Moreover most of the 'scientific working-plans' to be locally prepared and applied will, or in all probability ought to be, very simple plans of management. In this respect the forest administration is in a more backward condition than in any other presidency or province."

Bombay.—Although comparing unfavourably with the previous year, a considerable amount of progress was made. Working-plans for 119 square miles in the Northern Circle and 84 square miles in the Central Circle were completed during the year, and in the three Circles

plans dealing with 713 square miles were under compilation. In Sindh there are at present no working-plans, but a special working-plans establishment has lately been sanctioned. The area in the Bombay Presidency (excluding Sindh, for which Form 50 has not been furnished) for which plans have still to be taken in hand, stood at the close of the year at 6,762 square miles.

VI.—Communications and Buildings.

Considerable activity was displayed on the construction and maintenance of export roads connecting the forests with the markets they supply. In some provinces it was found necessary to construct roads outside the forests. In the Bengal Presidency R55,677 were spent on new roads, and R76,021 on repairs. In Madras R32,007 and in Bombay R2,918 were spent on road work. The highest expenditure (R64,721) took place in the North-Western Provinces and Oudh, where an excellent system of roads exists without which the produce of the forests would be unsaleable.

It is to be observed also that the construction of railways near or through the forests has in some instances considerably increased the demand for forest produce of all, and more particularly of inferior, kinds. Good sound timber of large dimensions generally commands a ready sale. But the supply of such is but limited, and in the case of most of our forests, owing to the want of easy communication with the markets and the consequent cost of extraction, the mass of timber of inferior quality or species, as well of minor forest produce remains unsold. The construction of railways, such as that through the Oudh forests and that of the projected lines from Nazibabad to Kotedwar will assuredly tend to the development of trade in such products.

Attention was also directed, particularly in the North-Western Provinces and in Madras, to the construction of rest-houses, and to providing suitable accommodation for Range officers and subordinates. In the Bengal Presidency R1,11,660 were spent on new building work, and R51,692 on repairs. In Madras R34,143 and in Bombay R17,802 were spent on building work.

A total expenditure of R3,81,920 was incurred under this head.

The details of work done in the various Provinces are as follows :—

Bengal.—The following statement contrasts the expenditure of 1894-95 with that of 1893-94 :—

	Buildings.		Roads and Bridges.		Total.	
	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.
	R	R	R	R	R	R
New construction	21,757	6,623	5,998	10,227	27,755	16,850
Repairs	10,435	9,410	6,885	7,046	17,320	16,456
Unapportioned	...	314	1,633	93	1,633	407
Total .	32,192	16,347	14,516	17,366	46,708	33,713

The total expenditure was thus R12,995 less than during the previous year. Seventy-three miles of new roads were constructed at a cost of R10,227. The Divisional office at Chaibassa was completed at a cost of R2,028, a station house at Rampura was built at a cost of R1,135 and a well was constructed at Jalpaiguri.

North-Western Provinces and Oudh.—The nature and cost of the various works executed under this head are summarized and compared with the results of the previous year in the following table:—

Circle.	Roads and Bridges.		Buildings.		Other Works.	Total.	Percentage on gross expenditure.
	New Works.	Repairs.	New Works.	Repairs.			
	R	R	R	R	R	R	
Central . . .	7,750	26,331	13,446	5,816	1,653	54,996	15·21
Oudh	7,540	11,210	23,563	6,553	2,811	51,677	16·53
School . . .	4,453	7,487	5,634	3,564	2,980	23,068	7·82
Total .	19,743	44,978	42,643	15,933	6,444	1 29,741	13·3
Total, 1894-95 . .	64,721		58,576		6,444	1,29,741	13·39
Total, 1893-94 . .	58,560		53,713		6,943	1,19,216	12·45

In the Central Circle, Garhwal Division, some important export roads were made at a cost of R4,244. Road work in other divisions was confined to inspection-paths. The office buildings and head-quarters bungalow were completed at Lansdowne, and R3,590 were expended during the year. New sheds for commissariat fuel and enlargement of charcoal depôt at Naini Tal cost R1,188.

In the Oudh Circle good progress was made, and attention was paid to the need for suitable quarters for subordinates. Twenty-seven miles of new roads were made in the Bahraich Division, 72 miles in Gonda, and 15 miles in Gorakhpur. In Pilibhit a rest-house was built for R1,900, whilst in Kheri the Bhira rest-house was nearly completed. A head-quarters office was built at Bahraich for R2,000. Rest-houses were also completed at Birpur, Sungarha, and Jagpur.

In the School Circle R10,087 were expended on new works, of which the most important were—

Eight miles of new roads in the Dehra Dun Division, 22 miles of paths in Jaunsar (R1,221). Forest *chaukis* were built at Kaluwala, Bibiwala, Ladwakot, in the Dehra Division, and at Khara, Bam, Sahansra, and Chillawala, with a forester's house at Mohand in the Saharanpur Division. In the Jaunsar Division a rest-house was built at Pajidhár and a forest guard's *chauki* at Bamsu.

Punjab.—The following statement gives an abstract of the charges on roads and bridges:—

Year.	New work.	Repairs.	Total.
	R	R	R
1893-94	2,896	3,931	6,827
1894-95	1,790	2,799	4,589

Fifty-six miles of new roads were made during the year, chiefly in the Hazara, Chamba, and Bashahr Divisions; a wire-rope bridge was built at Poári. The expenditure on buildings compared with the previous year was—

Year.	New work.	Repairs.	Total.
	R	R	R
1893-94	4,603	4,100	8,703
1894-95	5,326	3,916	9,242

Four new bungalows were under construction during the year. Two new range-quarters and fourteen foresters' and guards' huts were completed, whilst office quarters have been erected at Chángla Gali.

Central Provinces.—In the Southern Circle R5,689 were spent on new roads and R4,446 on repairs. In Balaghat 17 miles of new cart-road and 9 miles of inspection-paths were made at a cost of R279. In Bilaspur a road was carried with difficulty over the Barighat, about one mile, at a cost of R4,531. In Chánda 25 miles of new cart-roads were made at a cost of R513 or R20-8 per mile. Under buildings, R4,750 were spent on new buildings and R2,483 on repairs; considerable attention was given to the construction of suitable quarters for rangers and forest guards.

In the Northern Circle 68¼ miles of new roads were constructed at a cost of R2,898, whilst repairs cost R1,614; 108 buildings were completed at a cost of R4,495; R1,755 were spent on repairs to existing buildings.

Burma.—In Upper Burma, the total expenditure on new road works was R100, and on repairs R201, whilst on buildings R14,973 were spent on new works and R3,388 on repairs. In Lower Burma R4,444 were expended on new roads and works and R208 on repairs, and on buildings R9,535 were expended on new works and R4,534 on repairs. Of the above a considerable sum was spent in blasting operations to clear rivers of obstructions as follows:—

	R
Tenasserim Circle	1,001
Pegu Circle	3,771

The forest bungalow at Shwebo was completed at a total cost of R9,267 of which R3,053 were spent during the year.

Assam.—The expenditure incurred under this head is contrasted with that of the previous year as follows:—

	Roads.	Buildings.	Other works.	Total.
	R	R	R	R
New works	383	9,788	...	10,171
Repairs	2,197	5,353	889	8,439
Total, 1894-95	2,580	15,141	889	18,610
Total, 1893-94	4,909	11,719	557	17,185

Under buildings the chief work was the purchase and completion of a house for the Divisional officer at Nowgong at a cost of R7,000.

Coorg.—Twenty-eight miles of new roads were constructed at a cost of R2,259, and R2,633 were spent on repairs to existing roads; R7,074 were spent on buildings, most of which were new, during the year.

Ajmere.—No new work was done departmentally. A house and an office was commenced by the Engineering Department; R34 were spent on necessary repairs.

Baluchistan.—R322 were spent on new buildings; and 4 miles of new paths were made at a cost of R88; R94 were spent on repairs; R85 on buildings; R9 on roads.

Andamans.—R4,079 were expended on communications, of which R1,716 were spent in lifting up 3 miles of tramway line at Dhani Khari, and R1,447 in keeping tramway lines in order. R686 were spent on buildings, chiefly of a temporary character, for housing the convicts working in the forests.

Berar.—The charges of the year compare with those of 1893-94 as follows:—

	1893-94.	1894-95.
	R	R
Roads	22,225	13,806
Buildings	13,302	9,934
Wells	2,181	1,182

Fifty-two miles of new cart roads were made at a cost of R5,903, and R7,764 were spent on repairs; 28 new buildings cost R6,406 and R2,256 were spent on repairs.

Madras.—A total expenditure was incurred of R69,413 of which nearly half was spent on buildings.

In the Northern Circle, 56 miles of inspection-roads and 6½ miles of cart-roads were made. In the Central Circle, 7 miles of road, and in the Southern Circle, 15 miles of roads and sundry paths, the length of which is not known, were made.

Eleven rest-houses were constructed in the Northern Circle, 5 in the Central Circle, and 3 in the Southern Circle, in addition to numerous Range officers' quarters, and houses for foresters and forest guards.

Bombay.—There was no important expenditure on buildings in any circle, and among improvements to communications the only work calling for mention was the completion by the Public Works Department of the Jakraibari Ghât road, which connects the Dangs with

Khandesh and should render easier the exploitation of the Dang forests. The following table shows the expenditure incurred in the three circles :—

	New Works.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	R	R	R	R	R
Northern Circle	7,213	343	1,832	712	10,100
Central „	2,252	121	823	55	3,251
Southern „	2,369	304	1,618	1,347	5,638
Sind		Information not available.			1,730
TOTAL .	...	...	...	...	20,720

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

The following table shows the number of the breaches of the forest laws of which cognizance was taken and the manner in which they were disposed of, as compared with the previous year :—

Province.	Number of cases taken into Court.		Number of cases compounded.		Total.		Proportion of convictions to the total number of cases decided by the Courts.	
	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.
							Per cent.	Per cent.
Bengal	125	126	958	982	1,083	1,108	92·0	86·5
North-Western Provinces and Oudh.	128	116	530	606	658	722	81·2	82·7
Panjab	907	1,128	1,952	1,099	2,859	2,227	81·5	78·3
Central Provinces	216	201	3,542	4,142	3,758	4,343	79·6	77·1
Burma (Lower)	392	328	2,593	1,854	2 985	2,182	87·0	86.0
Burma (Upper)	216	240	449	304	665	544	74·1	77·9
Assam	138	101	339	642	477	743	83·3	75·2
Coorg	12	7	207	144	219	151	83·3	85·7
Ajmere	43	58	19	23	62	81	97·6	98·3
Baluchistan	41	70	35	47	76	117	87·8	97·1
Andamans	...	...	...	...	...	...	...	...
Total	2,218	2,375	10,624	9,843	12,842	12,218	82·6	80·8
Berar	134	116	704	661	838	777	70·1	77·6
Total Bengal Presidency	2,352	2,491	11,328	10,504	13,680	12,995	81·9	80·7
Madras	4,039	4,231	5,109	5,309	9,148	9,540	81·5	78·3
Bombay	2,493	2,205	3,660	2,869	6,153	5,074	78·8	75·4
Grand Total	8,884	8,927	20,097	18,682	28,981	27,609	80·8	78·2

The number of cases taken into Court have again slightly decreased and were in the year under review 23 per cent. less than in 1892-93; the proportion of convictions rose at the same time from 77·8 to 80·8 per cent. It seems superfluous to record special remarks under each Province, as, the more trivial offences included, the breaches of the laws amounted to less than one in every 3 square miles.

The following table gives a classification of the new cases of the year under the various heads of offences :—

Province.	Cases taken into Court.				Compounded cases.				Undetected Cases.				Totals of each class of offence.				Grand Total of Cases.
	Injury to forests by fire.	Unauthorized felling or appropriation of wood and minor forest-produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorized felling or appropriation of wood and minor forest-produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorized felling or appropriation of wood and minor forest-produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorized felling or appropriation of wood and minor forest-produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	
Bengal	6	39	14	5	1	27	58	9	...	...	...	...	7	66	72	14	159
North-Western Provinces and Oudh.	8	31	15	16	15	356	123	33	...	...	...	2	23	437	143	51	654
Punjab	116	562	209	120	1	890	1,010	61	239	50	10	6	356	1,502	1,229	187	3,274
Central Provinces	63	91	29	33	55	2,389	1,142	146	51	92	...	16	169	2,572	1,171	195	4,107
Burma (Lower)	8	330	...	37	7	2,067	4	494	5	14	...	1	20	2,411	4	532	2,967
Burma (Upper)	...	215	...	41	...	218	2	127	...	4	...	5	...	437	2	173	612
Assam	2	138	1	11	1	327	1	16	1	...	...	1	4	465	2	28	499
Coorg	1	7	...	4	...	...	135	72	...	...	...	...	1	7	135	76	219
Ajmere	3	35	...	5	...	13	6	...	...	...	...	...	3	48	6	5	62
Baluchistan	...	23	15	3	...	35	...	...	5	12	4	...	5	70	19	3	97
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	207	1,521	283	275	80	6,322	2,486	958	301	172	14	31	588	8,015	2,783	1,264	12,650
Berar	21	91	9	16	9	492	138	67	9	27	4	...	39	610	151	83	883
Total Bengal Presidency.	228	1,612	292	291	89	6,814	2,624	1,025	310	199	18	31	627	8,625	2,934	1,347	13,533
Madras					Details not available.								79	5,093	13,654	1,057	9,883
Bombay	83	1,006	919	428	16	1,539	1,891	201	1,540	1,572	200	42	1,639	4,117	3,010	671	9,437
Grand Total	...	...	...	...	...	...	...	...	...	...	...	...	2,345	17,835	9,598	3,075	32,853

II.—Protection from Fire.

It is obvious that offences in regard to fire affect the forests more injuriously and lastingly than a mere theft of produce, or at the best place them in danger of such evil effects. It has, however, been found impossible to compile, from the provincial statements and the remarks contained in the reports, both under, general protection and those relating to fire-protection, a comprehensive resumé, on the treatment of offences in regard to fire. There can be no doubt that additional information in this respect would be of great value ; and a short tabular statement in the form suggested below might with advantage be added in the body of the report of each circle as regards offences by fire.

Division.	Details of cases of offences by fire.						Remarks.
	Serial number of fire.	Acres burnt.	Character of offence (whether carelessness or intentional).	Acquittals.	Section of law under which convicted.	Amount of punishment.	

Fire-protection forms the most essential and at the same time the most difficult problem of forest administration in India. It is true there are in every province more or less extensive forest areas which, owing to their constitution or situation, are exempt from forest fires, and which consequently require no attention in this respect. There are also others which escape conflagrations in all but exceptional years when a late monsoon enhances the danger from fire. In forests of this class, special measures are rarely necessary, and a careful watch frequently suffices to prevent a calamity even in a specially dry season.

A very considerable proportion of our Indian forests are, however, exposed to annual conflagrations, a danger which is vastly enhanced by the habitual carelessness of the whole population in the use of fire in all areas surrounding the State forests, and the customary burning of grazing grounds and stubble. The protection of forests of this character can only be effected by isolating them from the rest of the country by means of fire-traces and by the employment of special fire-watchers during the season of danger.

The following table shows the progress and cost of these operations :—

PROVINCE.	Area in square miles.				Proportion of Failures to area attempted.		Cost				Proportion of area under fire-protection to total area of forests in charge of Forest Department.
	Attempted.		Protected.				Per square mile protected.		Per acre protected.		
	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.
					Per cent.	Per cent.	R	R	Pies.	Pies.	Per cent.
Bengal	1,874	1,871	1,865	1,182	0·5	36·8	5½	8	1½	2	14·45
North-Western Provinces and Oudh	2,968	2,842	2,942	2,508	1·0	5·0	18	21	5	6	76·44
Punjab	639	318	589	289	7·8	9·1	4	9	1	3	10·73
Central Provinces	6,523	6,386	6,145	5,963	5·8	5·6	8½	9	2½	3	32·73
Burma (Lower)	615	566	550	534	10·6	5·7	61	57	18	17	8·69
Burma (Upper)	408	55	389	51	4·6	7·2	10	72	3	21	9·25
Assam	1,193	1,153	1,192	1,094	0·08	5·1	8	10	2	3	6·76
Coorg	205	205	169	166	17·7	9·3	46	41	14	12	22·96
Ajmere	127	89	127	89	...	...	3	3	0·8	0·81	35·23
TOTAL.	14,550	13,235	13,968	11,916	4·0	9·9	12½	14½	4	4	19·95
Berar	1,397	1,389	1,390	1,350	0·5	2·8	9	9	3	3	33·43
Total Bengal Presidency	15,947	14,624	15,358	13,266	3·7	9·3	12	14	3¾	4	20·63
Madras Presidency	4,979	5,044	4,686	4,746	5·8	5·9	9	10	2½	3	26·50
Bombay Presidency	10,037	9,809	8,869	8,835	11·6	9·9	8½	8	1·0	0·84	67·14
GRAND TOTAL	30,963	29,477	28,913	26,847	6·6	8·9	8¾	9½	2¾	3	27·94

It will be seen that the area brought under special protection is increasing from year to year. This is satisfactory, but a large field for extension lies still before us.

This cannot, however, be gauged from the last column of the table, as reliable information regarding the extent of self-protected forests is not everywhere available; and until some attempt is made to classify the forests of each circle into—(*a*) self-protected, (*b*) not requiring artificial isolation, (*c*)

requiring isolation, it will be impossible to estimate the area to which artificial fire-protection must be finally extended and to forecast the eventual burden this will place on the forest revenues of the Empire.

Even though allowance were made for the variations in the labour-rates in the various provinces, the difference in the conditions affecting fire-conservancy are too great and manifold to permit of any useful comparison between the cost-rates. We have to do with grass-fires, with bush and with leaf-fires, and to meet endless varieties under each class. For instance as regards grass-fires, circumstances may require the early cutting of broad traces through belts of dense grasses in which an elephant cannot be seen and of burning the dry grass thereon before the adjacent jungle is inflammable. Narrow traces are of no use in such localities, as the fire, coming from the outside, would cross them. It is evident that operations of this kind, in order to be effective, cause a large amount of labour and a considerable outlay, whereas in other localities the grass may only be a few inches high, and here the outward firing may be controlled with the greatest ease by cutting a path a few feet broad, and in some cases even this is not required. Between these two extremes numerous variations exist, requiring more or less expensive measures in order to isolate the forest to be protected. Again, as regards leaf-fires, all depends on the time and manner in which the various forests shed their leaves. In some cases this happens before the fire-season commences and a single sweeping and burning of fire-traces suffices to protect the forests, whereas in others the shedding of leaves continues all through the driest weather and renders necessary a continuous attention to the clearing of the fire-trace. Thus, for instance, a fire-trace through a *Pinus longifolia* forest is entirely intractable, and forests of this character can only be protected by the sacrifice of a broad belt on which all growth of the species is prevented, thereby changing the character from a leaf-fire to a grass-fire protection. In how far the adoption of this measure is advisable in deciduous forests depends entirely on local conditions, and cases have occurred, where the cutting of a broad belt through the natural forest was followed by a grass-crop so dense and high as to render fire-protection more laborious and costly than it was before. The character of the surrounding country also greatly influences the difficulty and cost of fire-protection.

It will be seen from the table at the beginning of this section that out of 30,963 square miles, the special protection of which was attempted, 28,913 were saved and 2,050 square miles were overrun by fire.

The causes of the fires reported are, so far as this has been found feasible, tabulated in the following statement :—

Province.	(A.) Fires caused by accident or through carelessness in burning fire-lines.		(B.) Fires entering the forests by crossing exterior fire-traces.		(C). FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA.																Causes unknown.		Total (A. B) and (C.)	
					By workmen employed in the forests, by purchasers of forest-produce and by Yak-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightening or by fire-balloons.		By intentional firing.											
													In order to obtain new grass.		In order to turn out game or to reduce cover.		Maliciously fired.		Total.					
	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.	No. of Fires.	Area burnt, in acres.
Bengal	4	680	6	729	...	...	16	296	...	...	...	...	...	...	...	...	7	8,292	7	8,292	6	2,871	39	12,868
North-Western Provinces and Oudh. — Central Circle					*Details not given in Report.*																		22	4,356
North-Western Provinces and Oudh. — Oudh Circle	2	318	3	2,163	...	...	2	27	...	...	...	...	...	...	...	...	14	7,438	14	7,438	3	286	24	10,237
North-Western Provinces and Oudh. — School Circle	2	632	1	5	...	...	1	6	...	...	...	...	...	...	...	...	6	1,275	6	1,275	2	10	12	1,928
North-Western Provinces and Oudh. — Total																							59	16,521
Punjab	86	5,953	...	...	...	...	46	6,616	10	228	...	...	214	92,193	...	...	...	...	214	92,193	62	10,667	418	116,657
Central Provinces — Northern Circle					*Details not given in Report.*																		45	226,001
Central Provinces — Southern Circle					*Ditto.*																		24	14,497
Central Provinces — Total																							69	240,498
Lower Burma — Pegu Circle	13	13,064	...	...	3	1,946	9	2,437	...	...	...	...	...	...	...	...	24	7,126	24	7,126	18	12,037	67	36,610
Lower Burma — Tenasserim Circle	...	...	...	...	5	181	3	43	...	...	...	...	...	...	...	...	3	3,210	3	3,210	2	2,055	13	5,489
Lower Burma — Total	13	13,064	...	...	8	2,127	12	2,480	...	...	...	...	...	...	...	...	27	10,336	27	10,336	20	14,092	80	42,099
Upper Burma — Eastern Circle					*Details only partially given in Report.*																		5	1,576
Upper Burma — Western Circle					*Ditto.*																		1	10,880
Upper Burma — Total																							6	12,456
Assam	4	42	5	493	...	...	2	23	...	...	...	...	...	...	...	...	3	36	3	36	...	...	14	594
Coorg	3	95	...	...	1	50	...	...	...	...	...	...	...	...	...	...	14	22,530	14	22,530	6	92	24	22,767
Ajmere	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	71	3	71	...	...	3	71
Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	257	3	257
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	3	...	1	...	5	...	...	...	...	...	...	...	...	...	...	...	6	...	6	...	1	...	20	4,307
Madras — Northern Circle					*Details only partially given in Report.*																		...	40,919
Madras — Central Circle					*Ditto.*																		...	89,229
Madras — Southern Circle					*Ditto.*																		...	48,168
Madras — Total																							...	187,316
Bombay — Northern Circle					*Details only partially given in Report.*																		...	429,079
Bombay — Central Circle					*Ditto.*																		572	205,376
Bombay — Southern Circle					*Ditto.*																		649	42,096
Bombay — Sindh Circle					*Ditto.*																		60	3,544
Bombay — Total																							...	750,095

It would be advisable if the information necessary for the preparation of this table was entered in all future provincial reports in a comprehensive manner.

The table in the last paragraph shows that a considerable number of the fires recorded were wilfully kindled inside the reserves or fire-protected areas, sometimes with the object of obtaining a crop of new grass, at others for the purposes of driving game out of cover, and in some cases with the intent of doing injury. The Forest administration by itself is not sufficiently powerful either as regards protective establishments or influence to prevent fires thus intentionally lighted, and requires the more important backing of the Civil administration of the district, clearly expressed by deterrent punishments or as the case may be by the withdrawal of rights and concessions.

Bengal.—The province contains a considerable area of self-protected forest, including the whole of the Sundarbans division. The results of special fire-protection were extremely favourable. In their orders on the administration report the Supreme Government remarked, however, "Protection from fire was specially successful, only 0·5 per cent. of the area in which protection was attempted (1,874 square miles) having been burned. The circumstances which tended to secure these favourable results were, however, probably very exceptional, and it remains to be seen what effect the orders under which special fire-reports are in future to be submitted to the Local Government will have in hindering the recurrence of such conflagrations as occurred in 1893-94."

North-Western Provinces and Oudh.—Fire protection in these provinces was successful. The Local Government remarks as follows:—

"The season was a favourable one for fire conservancy, and the results achieved in all three circles were eminently satisfactory. The largest area burnt was in the Oudh Circle, and two-thirds of the failures in that circle occurred, as usual, in the Pilibhit division. Indeed, Mr. Wilmot is of opinion that had not the weather been generally favourable to protection, the conflagrations in this district would have attained to the extravagant dimensions of former years. The responsibility of the village communities of Pilibhit has now been defined by the notifications which direct that their rights of user shall be exercised in particular compartments. If fire is caused wilfully or through gross negligence in any compartment, application may be made by the Conservator to suspend, under the final clause of section 25, Act VII of 1878, the rights to pasture and forest produce possessed by the offending villages. In their reports for the next year (1895-96) the three Conservators are requested to report in detail on the forest areas to which fire-protection has not yet been systematically extended, explaining the reasons for the exclusion of these tracts and the prospects of extending protection, within a reasonable period, to the entire area of their charges."

Punjab.—Fire-protection in this province has not improved, and wilful firing plays a greater part in the want of success than in any other part of the Empire. Incendiarism is chiefly ripe in the Rawalpindi division and Hazara. The following is extracted from the Conservator's report:—

"In the Hazára division the increase in the number of fires is chiefly in the Kágán and Siran ranges, where the largest sums were paid to the people in rewards for assistance in the previous year, in accordance with the orders of Punjab Government, No. 393, dated 13th July 1893, and the largest amount had been spent for the protection of the forests by patrol-paths and fire lines. Moreover, to obtain the good-will of the people, free grazing was allowed in 1894-95 in 5,114 acres of the Siran and Khánpur ranges, of which 2,902 acres were burnt, directly the fire season commenced. A still further concession was made in allowing the people to graze cattle free in 5,706 acres of 7 reserves, aggregating 9,707 acres, in the Khánpur range, which had been leased for grass-cutting only. As soon as the leases were given the villagers proceeded to burn the forests to obtain fresh grass.

Thus all attempts to obtain the good-will of the people by concessions have failed, and it seems that, if fires are to be put down, more rigorous measures for repression than have yet been attempted must be taken. It is very desirable that, when offenders are caught actually setting fire to the forests, they should be severely punished, but in the few cases where offenders have been thus caught, their punishments have fallen considerably short of the maximum extent allowed by section 26 of the Hazára Forest Regulations. In Khánpur fines to the extent of R4,044 were inflicted."

The Local Government remarked as follows:—

"The fires were most numerous in Hazára, Rawalpindi, Kángra, Kulu, and Lahore; but in regard to the areas burnt, more than two-fifths of the provincial total are entered in the single division of Rawalpindi. It is remarkable that in Hazara the great mass of the fires took place in specially protected areas. It is to be feared that even moderate measures of conservancy are felt as a grievous burthen by the people of that district. It is very difficult to obtain proof of incendiarism in regard to these forest fires. But when wilful burning is

actually proved, exemplary and deterrent punishment should be pressed for."

The Government of India in their orders on the administration report of the year remarked on the continuous want of success as follows:—

"The attempts at fire-protection were even less successful than in previous years, there having been a marked increase in the areas burnt over in all but the Chenab, Chamba and Umballa divisions. It is observed with special regret that the grazing concessions which were given in the Hazara division in order to obtain the good-will of the people, were immediately followed by the burning of the opened area, with the alleged object of obtaining fresh grass. The Government of India hope that every effort will be made to impress upon the people the scope and object of the concessions, and that they will be withdrawn without fail in regard to all areas burnt. It is noted with concern that a great proportion of the fires took place in specially protected areas. The continued failure to protect the forests from fire so seriously affects the permanent well-being of the country, that the Government of India agree with the Lieutenant-Governor that where wilful burning is proved, whether with intent to do damage or in order to obtain new grass, the punishment should be exemplary and deterrent."

It is evident that the most energetic fire-protection and the most systematic isolation of the forests must fail so long as wilful firing takes place inside the fire-protected areas; but at the same time it cannot be denied that the problem before the Local Government is surrounded by considerable administrative and political difficulties—a fact which cannot be left out of consideration when criticizing the constant want of success in the frontier districts of the province.

The area of self-protected forests is considerable, especially in the *bars*, but is mainly due to heavy grazing, by which the most inflammable material is removed.

Central Provinces.—A large proportion of the forest lands in these provinces escapes annual conflagrations on account of the heavy grazing which denudes them of inflammable material. It is evident, however, that this kind of protection is less beneficial to the forests than the exclusion of fires from areas closed to grazing; for though the forests have immunity from fire by the removal of the grass, the majority of its young reproduction is destroyed as well by the mouth and the hoofs of the cattle. The year was unfavourable for protection as high winds prevailed during the dry months. Under these circumstances the successful protection of 6,145 square miles out of 6,521 square miles may be considered as a satisfactory result. The following remark in the Chief Commissioner's resolution deserves special attention:—

"Five years ago the area under special protection was—

	Sq. miles.
Northern Circle	1,587
Southern Circle	1,648
Total	3,235

In this last year the protected areas were—

	Sq. miles.
Northern Circle	4,188
Southern Circle	2,333
Total	6,521

The area to which protection has been extended has thus doubled during the last five years."

It is suggested, however, that the returns for the Northern Circle comprised many areas not under organized protection, which for the Southern Circle are contained in the following statement:—

Division.	Total area of Government forests.	Deduct area under special fire-protection.	Balance.	Area burnt over.	Area which escaped being burnt.	Percentage of area which escaped.	Remarks.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
Balaghat	711,756	174,597	537,159	20,700	516,459	96·15	
Bhandara	344,115	91,227	252,888	89,945	162,943	64·43	
Bilaspur	414,860	308,686	106,175	11,610	94,565	89·06	
Chanda	2,177,034	468,664	1,708,370	990,855	717,515	42·00	
Chhindwara	462,386	26,240	436,146	36,329	389,817	93·01	
Nagpur	337,653	91,797	245,856	5,943	239,913	97·57	
Wardha	117,304	33,350	83,954	732	83,222	99·12	
Raipur	884,777	88,960	795,817	211,360	584,457	73·44	
Sambalpur	251,807	45,667	206,140	158,547	47,593	23·08	
Seoni	617,762	163,965	453,797	39,417	414,380	91·31	
Total	6,309,454	1,493,152	4,816,302	1,565,438	3,250,864	67·50	

Mr. McKee, the Conservator, writes :—"The figures, if at all correct, and there is no reason for supposing them to be very inaccurate, are evidence of the fact that the people generally have come to recognize the importance laid on this particular protective measure, and that they largely refrain from burning the waste, as a matter of course, as was their former custom. The fact also that, the majority of these unprotected areas are very heavily grazed over, renders their protection from fire a comparatively easy matter."

Burma.—Fire-protection in Burma is surrounded with more than ordinary difficulties. The reserves form mostly merely *enclaves* within forest tracts of a similar character, and within these forests outside the reserve boundaries, the use of fire is practically unrestricted. Paddy-field fires run into them unchecked, and the numerous *taungyas* annually burnt within these open areas are so many centres of forest fires which must sooner or later cross the boundaries of the reserves, if not checked by artificial fire-traces or accidental isolation. The construction and maintenance of such fire-traces is, owing to the character of the forests, often very expensive; reliable fire-watchers are obtained with difficulty, and till quite lately the subordinate establishment has been entirely inadequate to deal with the matter. The question regarding the most effective and least expensive method of isolation seems a problem which has not as yet been satisfactorily solved. The clearing of broad fire-traces of all tree growth has in several instances resulted in a heavy grass crop; the cutting and burning of which protection is no doubt safe but extremely expensive; whereas the constant shedding of leaves, especially by the bamboos, make a leaf-fire protection under canopy difficult and somewhat uncertain. It is only by the most minute attention in the selection of fire-traces, and by carefully adapting the measures chosen for isolation to the conditions of each locality through which the fire-traces run, that a cheaper and more extended fire-protection can be attained.

In regard to this all-important question, the Government of India remarked in their resolution on the administration reports of the year :—

"In fire-protection the province has, in spite of the wilful incendiarism complained of in Lower Burma, made a greater advance in this than in any previous year; the area successfully protected rising from 585 to 939 square miles. At the same time the cost-rate per acre has materially decreased. This is satisfactory, but much remains to be done.

"The Forest Department in Burma has special difficulties to contend with in respect of fire-protection; in many parts of the country an almost tropically luxuriant undergrowth, which becomes terribly inflammable during the long dry season; want of labour and its excessive cost; the widespread custom of *taungya* cultivation and the habitual recklessness in its exercise; and till lately insufficient subordinate establishment"

The majority of the forest fires in Burma, especially in those areas where the teak tree has its chief home, are, apart from the periods when the bamboos have flowered and died, mainly low leaf-fires, and the damage done thereby is consequently not so excessive as might be imagined. Still reproduction is cut down year after year till an area escapes for a few years by accidental isolation or otherwise; when a crop of young seedlings, especially of teak, takes possession of the ground, and may if favoured by circumstances retain it. Teak seedlings perhaps possess a greater power of resistance to the damaging effects of fire than those of any other species, and spring up again after being repeatedly cut back by fire. The fact that continuous forest fires have not prevented the existence of teak trees of all age-classes is merely a proof of the enormous power of its resistance, but does not support the somewhat inconclusive and sweeping conclusion drawn from Mr. Slade's remarks on the effects of fire-protection and its influence on natural reproduction, that fire-protection would appear to be detrimental to the natural regeneration of teak. Mr. Slade's remarks are after all as yet based only on indirect evidence and theory, and merely show that teak suffers less from fire than most other species—a fact which was known previously.

The Supreme Government in their resolution on the administration reports recorded the following remarks :—

"It is a fact of great importance that some of the constituents of the Burma forests, and especially the teak which represents their main wealth, should be less affected by forest fire than most other trees, and that the natural reproduction of this species should be in some degree favoured in its struggle against others by an occasional forest fire. It has been for years a well known fact that natural reproduction of teak in a fire-protected forest, especially if in a moist position, labours under difficulties which do not exist in areas subject to fires; and it has also been frequently found that occasional fires which have run through plantations or teak *taungyas* have caused no visible permanent damage. On the other hand, it cannot be gainsaid that countless seedlings, even of teak, are destroyed by recurring conflagrations, while the unsoundness which characterises so much of the mature timber is due to no other cause.

"The controlled use of fire in teak *taungyas*, or in assisting teak reproduction in areas over which the bamboo has seeded, even within fire-protected tracts, is already resorted to; but in drawing the sweeping conclusion 'that fire-protection would appear to be detrimental to the natural regeneration of teak if carried out strictly year after year,' there is, the Government of of India fear, a danger that the necessity for control over the use of fire in favouring such regeneration should be lost sight of. Moreover, such observations as Mr. Slade has recorded for the Tharrawaddy division may not, and probably will not, apply to the same extent to the drier forests of Prome and Thayetmyo, and the Government of India are pleased to observe that you have brought them to the notice of other officers for comparison and verification."

A case of wilful firing was punished by six months' imprisonment.

The area of self-protected forests in Burma is considerable, but does not comprise the more valuable forest tracts.

Assam—Contains a considerable forest area which needs no protection by artificial means, but their extent is nowhere given. The area protected by artificial isolation was slightly increased and great success attended the efforts to protect them.

Coorg.—The results of fire-protection in Coorg are as yet far from satisfactory. The cost-rate has again increased, as well as the area over which protection failed. A considerable number of the fires were attributed to incendiarism, but special magisterial enquiry into the causes does not seem to support this theory, at least not in the majority of cases. Habitual carelessness on the part of the people in the use of fire in protected forests would seem to be the prevalent cause of these conflagrations.

Ajmere.—Fire-protection has been considerably extended and proved almost entirely successful.

Berar.—The results of the year were even more satisfactory than in the previous one.

Madras.—The area artificially protected in Madras has been somewhat reduced, but why this was done is not stated; the results were above the average and the cost-rate moderate.

The Supreme Government recorded the following remarks:—

"The results of fire-conservancy are very satisfactory, particularly as the success attained has been accompanied by a decrease in the cost per square mile. It is, however, to be regretted that any doubt should exist as to the accuracy of the returns, and it is hoped that steps may be taken to remedy this defect."

Bombay.—Fire-protection is further advanced in this province than in any other, both as regards the extent of the area protected and the lowness of the cost-rate; but as regards the proportion of failures to the area attempted, it is the second worst on the list. It is a fact worthy of notice that out of 131 fires in East Thana 123 commenced inside the reserves.

The Government of India remarked in their resolution:—

"The success attending the protection of the forests from fire varied considerably in the different portions of the Presidency. In the Northern Circle the failures amounted to 34·3 per cent. of the area placed under special protection, and here again the chief fires occurred in the Surat division; but extensive conflagrations took place in the Panch Mahals and Thana also, and the fact that most of the fires in the latter division were started inside these specially valuable forests added considerably to the seriousness of the case. In the Central Circle only 5 per cent. of the whole forest area was burned; but this is nevertheless 131 square miles more than in the previous year. From this circle it is reported that a considerable number of the offenders were caught and convicted, but the punishments inflicted are not mentioned. The effect of forest fires on the natural reproduction and well-being of the forests is so serious that the Government of India would suggest that the offences under this head might with advantage be tabulated separately, and the punishments inflicted on conviction shown. Such punishments as are referred to in paragraph 45 of the Report on the Northern Circle would, if usual, go far to make effective fire-protection an impossibility. In the Southern Circle only 4·6 per cent. of the specially protected area was burnt, and a large portion of the forests, reported as upwards of 70 per cent. of the whole area, apparently escape fire without special measures for their protection. In Sindh no artificial fire-protection is required. Speaking generally, Bombay is better situated and further advanced as regards fire-protection than any other province."

III.—Regulation of Grazing.

Forest conservancy and grazing are not so entirely antagonistic as is frequently supposed and asserted. It is true that in forests subjected to unregulated fellings, accompanied by unrestricted grazing, reproduction is retarded and in many cases entirely prevented, but under a rational system of

treatment and exploitation, all forests go through periods of their existence where judiciously regulated grazing does little or no harm, and it would evidently be a national loss if the grass-crops that may thus be available were not utilized. The reaping of such crops by cutting is, from an economic point of view, naturally more advantageous than grazing, as it yields a far larger return. This is now almost universally acknowledged in India as elsewhere; but it is not everywhere feasible, as the necessary labour is not always available and above all is not as yet the custom of the country. In many parts of the Empire, especially in such where large areas of cultivable land are not available, cattle-keeping and breeding forms a very important support of the peasant population, and in numerous districts agriculture could not exist, or at least would make no progress without a certain amount of forest pasture. This, as well as the fact that, save in exceptional cases where the forests yield articles of export such as teak, cutch, etc., neither the ground nor its produce is of much value without a population, is now fully recognized, and the principle promulgated when the first forest laws were introduced and passed in India "that forest conservancy should, as far as possible, be concentrated and restricted to remote regions for the growth of gigantic trees" has gradually been abandoned.

This has been a great step in advance and has proved to be beneficial not merely to the exchequer of the Empire but to the people of the country, a fact which is not as yet generally understood and appreciated, by securing to them a permanency of the advantages obtainable from a rational forest conservancy.

The immediate vicinity of State forests to cultivated parts of the country however, which is now of frequent occurrence, and becomes more so from day to day by the reservation of new forest tracts and by the extension of cultivation to the boundaries of older reserves, lays a more imperative duty than ever on the Government charged with the administration of the State property to manage it in a manner most conducive to the permanent benefit of the population.

It is a well-known fact that such permanency cannot be secured without a considerable amount of restriction on the free and unchecked exploitation of the produce of the forest land. Amongst such restrictions that of grazing has always been surrounded with exceptional difficulties, and this is more especially the case in many of our Forest circles in India.

In Burma, Assam, Bengal, the submontane forests in the North-Western Provinces, in Sindh and in considerable forest areas in almost every province, the grazing question presents no difficulties whatsoever; but in the drier districts of Bombay, Madras, the Berars, the Central Provinces and parts of the Punjab, where the forests, which are frequently, owing to centuries of malpractices, in a more or less ruined state, would most benefit by prolonged closure, the people are, as a rule, most dependent on forest pasture. This fact is fully recognized not merely in forest settlements, which deal, or at least should deal, only with pasture which can be claimed by right, but in every working-plan which places, wherever pasture is required, the maximum area available under a rational treatment, at the disposal of the public. The areas open to grazing in each forest unit vary according to local conditions and requirements, and in many cases tree-growth is considered of secondary importance.

The prevalence of browsing animals, such as camels and goats and to a certain extent sheep in India, render tree reproduction in many forest tracts almost impossible, and the burning of forest pasture in order to obtain a new crop of grass, which is still a very common practice in the Punjab, is still

more fatal to any reproduction and even to the maintenance of the existing forests.

The areas open to browsers has been considerably contracted, and it is to be hoped will be further reduced wherever the production of a permanent wood-supply is of any importance; but to close all State forests to animals of this class, as in Europe, is out of the question in India.

That the firing of forest pasture, at least in all localities which are not pure savannah, should be put an end to is acknowledged on all sides, and much has been done in this respect; but in some districts, especially in the north-west of the Punjab, all measures as yet adopted have failed.

Apart from these special difficulties, however, which have been unknown in more civilized countries for generations, it may be claimed that a considerable advance has been made in the course of years in bringing the demands of rational forestry into accord with the grazing requirements of the country. Generally speaking the development in this respect is gradual, and is placed on a firm basis as working-plans spread over the forest areas; but some radical changes have in recent years taken place in the grazing policy in the Central Provinces and Madras which require special notice. In the former province the grazing fees used to give the right of grazing in all open forest of one district only, and new fees were levied on nomad cattle as they passed from district to district either in search of fresh pasture or in the course of trade, which to a great extent is carried on by the help of pack-cattle. This custom of levying a new fee in each district was abolished in 1893, simultaneously with a general reduction of rates, and resulted in a considerable fall in the grazing revenue, however, not to the extent that would appear from the figures of the present year, during which, owing to a general scarcity, people in the most affected districts were exceptionally leniently treated in respect to forest rates.

In the Madras Presidency it had been for years the custom to lease the grazing rights in State lands to middlemen and contractors, who in their turn levied the grazing fees from the cultivators and cattle owners. Experience, however, showed that whilst the peasantry was harried and worried and some exaction took place on the one side, the Government did not realize a fair profit on the State property. The procedure was consequently changed district by district as arrangements could be made for a direct levy of the grazing rates. The consequence is that the grazing revenue has doubled in the last five years, and so far, it is believed the small landholders and graziers prefer the present system which, though not so liberal as that of the Central Provinces, meets the requirements of the case, and has the advantage of protecting to some extent the cultivator against the nomad.

This question as to what extent local herds are in their turn forced to move by the invasion of nomadic cattle in areas on which the surrounding villages rely for forest pasture, has not perhaps been sufficiently considered in framing the Central Provinces grazing scheme, and may at some future time necessitate its modification; for the compulsory search of new grazing ground on the part of local cattle will be found more and more inconvenient as cultivation extends. Another drawback to the scheme is that the amount of grazing in any particular forest can never be controlled or restricted as circumstances may dictate. Forests must be either entirely closed, or entirely open, and take their chance. The Madras *parcellaire* system enables the local administration to regulate the number of cattle admitted into any block.

The following table shows the areas closed to grazing in the forests of the various classes.

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All Classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,839	5,431	20	3,091	2,248	11	4,034	1	...	12,964	7,680	31
North-Western Provinces and Oudh	3,765	1,653	584	91	16	...	44	1	30	3,903	1,675	614
Punjab	1,677	779	331	256	...	103	3,995	54	272	4,937	833	206
Central Provinces	19,542	2,606	5,506	...	...	...	390	...	22	19,932	3,606	5,618
Lower Burma	7,073	6,795	7,008	...	...	...	...	...	...	7,071	6,795	7,009
Upper Burma	4,408	3,816	2	...	...	...	...	...	...	4,408	3,816	2
Assam	3,716	2,694	1,012	...	...	...	13,912	...	...	17,628	2,694	1,012
Coorg	235	1	...	655	..	...	...	...	...	893	1	...
Ajmere	129	45	3	...	...	...	10	...	...	149	45	3
Baluchistan	175	116	...	...	...	...	...	...	...	175	116	...
Andamans	73	...	...	...	...	...	1,882	...	...	1,955	...	...
Berar	4,179	1,322	163	...	...	...	...	...	...	4,179	1,322	163
Total Bengal Presidency	50,822	23,163	15,239	4,125	2,264	114	24,267	56	324	79,214	27,483	15,697
,, Madras	11,466	Details not available		...	...	...	7,824	Details not available		19,290	2,141*	...
,, Bombay	11,983			2,965	Details not available		...	...	...	14,948	3,148	6,548
Total	74,271	...	...	7,090	...	...	31,991	...	...	113,452	...	...

* Exclusive of area in Godavari, Cuddapah, Chingleput, Nellore and Madura Districts, about which no information is given.

The following table shows the grazing rates in force in the several provinces :—

Province.	Buffaloes.	Cows.	Camels.	Goats.	Sheep.	Other animals.	Remarks.
	Annas.	Annas.	Annas.	Annas.	Annas.	Annas.	
Bengal (a)	...	...	...	..	...	...	.....
North-Western Provinces and Oudh (b)	...	...	...	...	...	...	.....
Punjab (c)	...	...	...	...	...	...	.....
Central Provinces	8	4	...	2	1½	...	.....
Burma (Lower) (d)	...	...	...	...	...	...	.....
Burma (Upper) (e)	...	...	...	...	...	...	.....
Assam (f)	...	...	...	...	...	...	.....
Coorg (g)	...	...	...	...	...	...	.....
Ajmere	4	2	...	...	...	...	Double these rates for non-right-holders.
Baluchistan	8	8	...	1	1	...	.....
Andamans (h)	...	...	...	...	...	...	.....
Berar	4	2	...	1	1	...	.....
Madras	8	9	...	2	2	...	.....
Bombay	8	4	...	2	1	...	Double these rates for professional graziers.

(a) In the Khurda Protected forests, professional graziers only are charged 8 annas for buffaloes and 4 annas for other animals.

In the Dumsong Sub-division of the Darjeeling District, the rates are 4 annas for buffaloes, 2 annas for cows and bullocks, 2 annas for donkeys and ponies, and one anna for sheep and goats.

(b) In the Western Siwalik forests, privileged villages pay 4 annas for buffaloes, 2 annas for cows and bullocks, one anna for ponies and donkeys, and 6 pies for sheep and goats. Similar rates are paid for grazing in the Government forests of the Saharanpur District and the Reserved forests of Kheri, Bahraich and Gonda; in the last named forests camels are allowed to browse at 8 annas a head.

In the Reserved forests of the Dehra Dun and Saharanpur Districts the rates are—for elephants R60 per annum or R7 per mensem or 8 annas per diem; for camels R2 per annum or 3 annas per mensem; for buffaloes 8 annas per annum or one anna per mensem; for cows and bullocks 4 annas per annum or 6 pies per mensem; for donkeys, sheep and goats 2 annas per annum or 3 pies per mensem.

(c) In the protected forest areas of the Kohat District, the ordinary rates are—camels R2 4-0, buffaloes and horses R2-8-0, bullocks and donkeys R1-8-0, sheep and goats 2 annas per annum. Shinwari graziers pay at the following rates for grazing during the six months of the cold weather—full grown camels, 8 annas; camels not full grown 5 annas 4 pies; sheep and goats R5-4-0 per hundred. Commissariat camels are admitted to these areas on payment of a fee of 3 annas per mensem.

(d) In the Pegu Circle the grazing fees charged are—8 annas for buffaloes and 4 annas for cows and bullocks per annum. In the Tenasserim Circle no fees are levied.

(e) Information not available.

(f) The inhabitants of the Goalpara District only are charged for buffaloes 2 annas per head for the season January to April.

(g) Ryots are for the most part allowed to graze their cattle free in the Government forests.

(h) The population is so small and the grass lands so plentiful, that very few cattle ever enter the forests for the purpose of grazing.

The table below shows the number of animals which grazed in the open forests of each Circle :—

Provinces.	Circle.	Grazed on payment. At full rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Grazed free. By right under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	During pleasure of Government, or otherwise than under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal*		3,144	6,610	12,174	...	16	20,185	132,897	26,902	...	34	...	...	...	...	...	62	267	...	...	4
N.-W. P. and Oudh.	Central	18,064	60,357	3,830	...	3,024	1,156	3,871	59,497	...	206	29,836	88,919	17,213	...	800	2,050	5,144	309	...	1
	Oudh	11,770	49,851	3,939	...	48	30,513	187,157	18,864	4	1,177	4,209	26,946	...	...	...	1,102	3,856	310	...	880
	School	13,388	18,670	19,081	6,540	9,083	1,474	9,934	201	...	...	399	18,331	61,646	...	...	...	1,840	...	...	...
	Total	43,222	128,878	26,850	6,540	12,155	33,143	200,962	78,562	4	1,383	34,444	134,196	78,677	...	800	3,152	10,840	619	...	881
Punjab*		31,086	91,921	275,438	6,453	396	1,320	15,461	406,717	109	1,153	17,250	148,050	112,629	176	2,604	394	1,233	115	...	22
Central Provinces.	Northern*	150,977	829,819	43,379	42	1,500	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Southern	131,680	1,082,472	189,537	...	439	...	...	...	...	...	...	...	...	...	...	54	877	50	...	...
	Total	282,657	1,912,291	232,916	42	1,939	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lower Burma	Pegu*	414	992	...	...	...	...	...	...	...	...	247	121	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	7,384	411	27	...	19	...	...	...	...	...
	Total	414	992	...	...	...	...	...	...	...	...	7,631	532	27	...	19	...	...	...	...	...
Upper Burma	Eastern	Information not available.																			
	Western	...	...	...	...	...	...	...	...	...	...	4,016	...	...	...	...	...	...	...	...	...
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Assam		17,266	3,455	...	...	73	56	...	...	...	2	...	...	...	...	...	272	1,784	...	...	...
Coorg		482	8,036	...	...	...	...	...	...	...	...	...	3,299	...	...	...	...	...	...	...	...
Ajmere		314	57,509	556	176	1,806	960	5,619	...	...	...	321	2,126	...	...	...	...	...	...	...	...
Baluchistan		186	838	4,404	...	...	...	...	...	...	...	...	794	13,942	1	414	...	...	...	...	...
Andamans		Information not available.																			
Berar*		148,794	792,167	287,652	11,891	7,078	...	169	...	...	...	47	35,532	...	...	...	7	61,259	...	...	...
Madras	Northern	Information not available																			
	Central																				
	Southern																				
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay	Northern	1,848	11,200	...	...	...	1,220	8,425	46	...	7	62	369	...	...	...	70,639	223,946	8,360	...	493
	Central	13,654	97,539	131,931	...	7,567	50,341	464,815	190,619	...	932	...	...	...	...	...	51,379	357,048	644	...	475
	Southern	7,310	17,119	78,150	...	581	72,971	297,116	81,896	...	196	...	...	...	...	...	21,172	70,324	32	...	...
	Sindh	46,681	49,777	267,308	8,037	688	9,702	26,073	84,901	1,175	60	2,080	12,892	...	...	357	71	311	...	4	...
	Total	69,493	175,635	479,789	8,037	8,836	134,234	796,429	357,462	1,175	1,195	2,142	13,261	...	...	357	143,261	651,629	9,036	4	968

*Information is incomplete.

The following statement shows, so far as this can be ascertained from the annual reports, the amount of revenue realized and foregone by Government on account of free grazing and grazing at privileged rates :—

Province.	Circle	Amount realized.	Amount foregone.
		R	R
Bengal*	.....	15,160	54,000
North-Western Provinces and Oudh	Central	21,043	43,100
	Oudh	27,632	31,000
	School	27,123	6,400
	TOTAL	85,798	80,500
Punjab	...	77,918	1,90,000
Central Provinces	Northern	1,98,407	44,500
	Southern	1,92,997	50,000
	TOTAL	3,91,404	94,500
Lower Burma	Pegu	841	200
	Tenasserim	...	56,200
	TOTAL	841	56,400
Upper Burma	Eastern	...	3,900
	Western	...	3,000
	TOTAL	...	6,900
Assam	...	10,113	1,33,300
Coorg	...	2,374	800
Ajmere	...	1,275	80,600
Baluchistan	...	570	8,100
Andamans	...	...	300
Berar	...	2,11,086	1,07,100
Total Bengal Presidency	...	7,96,539	8,12,500
Madras Presidency	Northern*	1,27,581	1,26,500
	Central	1,37,358	19,900
	Southern	63,354	14,600
	TOTAL	3,28,293	1,61,000
Bombay Presidency	Northern	8,330	1,60,000
	Central	2,65,050	4,15,100
	Southern	1,06,280	66,200
	Sindh	48,581	15,200
	TOTAL	4,28,241	6,56,500
	GRAND TOTAL	15,53,073	16,30,000

* Information incomplete.

The number of cattle impounded for illicit grazing varies greatly in the several circles, as may be seen from the following statement which cannot however be accepted as either accurate or complete :—

Province.	Circle.	Cases of illicit grazing.	Number of head of cattle impounded.
Bengal	.....	441	1,432
North-Western Provinces and Oudh	Central	38	?
	Oudh	72	?
	School	33	?
	TOTAL	143	
Punjab	.....	1,229	26,536
Central Provinces	Northern	660	?
	Southern	511	?
	TOTAL	1,171	
Lower Burma	Pegu	1	?
	Tenasserim	3	?
	TOTAL	4	
Upper Burma	Eastern	2	?
	Western	...	?
	TOTAL	2	
Assam	.....	2	?
Coorg	.....	135	981
Ajmere	.....	6	2,405
Baluchistan	.....	19	2,495
Andamans	.....	...	...
Berar	.....	151	?
Madras Presidency	Northern	715	?
	Central	2,206	?
	Southern	733	?
	TOTAL	3,654	
Bombay Presidency	Northern	38	10,539
	Central	1,761	3,37,918
	Southern	28	18,432
	Sindh	1,183	22,988
	TOTAL	3,010	3,89,877

(?) Information not available.

IV.—Reproduction.

The principles of sylviculture are the same all over the world, but their application varies according to circumstances and conditions, and in this respect every conceivable variety is represented and has to be dealt with in India. The extent of the forest areas and the comparatively small income per acre necessitates, in most cases, a sylvicultural treatment solely based on natural reproduction, and the questions involved require the Forest Officer's constant study and thought. It is true that in the majority of our forests, especially in those which are the more valuable ones from a purely fiscal point of view, natural reproduction advances satisfactorily under a continuous protection from fire and cattle, but this alone is barely sufficient for the maintenance and improvement of the character of the crops, as the species composing the *peuplement* in Indian forests vary in value to a much greater extent than is the case in Europe for instance.

In the gregarious pine forests in the North-West Himalayas, it is the deodar to which the preference must be given in all suitable localities. Its value is twice that of any other pine, and in many cases it is the only species which can as yet be profitably extracted. The treatment of these forests offers, consequently, considerable difficulties, especially in localities which, on account of their position, exposure and soil, are more favourable to inferior species. Good progress has, however, been made in the study of this class of forests and their reproduction, and the working-plan prescriptions for their treatment now rest on a comparatively safe basis. It has often been found necessary to assist the natural reproduction of the deodar by cultural operations, planting or the dibbling in of seed on prepared plots or lines, and by the felling or girdling of inferior pines in advance growth of the better species. These operations are now fully understood, not merely by the supervising ranger and forester, but by the work-people, and success almost invariably attends their execution.

The sâl forests in the Sub-Himalayan tracts, in the Garo Hills, and in the belt extending from the Bay of Bengal to the Vindhya Range form another class of more or less gregarious forests, in which reproduction is, as a rule, sufficiently abundant wherever an efficient fire-protection has been secured and grazing has been regulated and restricted. At the outset of regular forest management, the prevalence of frost in exploited localities often caused great anxiety and trouble. In others it was the rapid growth of high grasses which interfered with reproduction, and on clayey soils the dense crop of a young growth of *Terminalia tomentosa*—a tree by no means unmarketable, but of less value than sâl. Here again, however, it may be asserted that the study of the characteristics of this class of forests and their behaviour towards the dangers which mainly threaten their satisfactory reproduction has sufficiently advanced to secure a fairly correct and generally successful treatment.

The areas of deciduous forests which cover the greatest part of the country, from the southern slopes of the Himalayas to Cape Comorin, as well as in Burma, may, for our purpose of reviewing the value of reproduction, be divided into two main classes :—

(*a*) Those which contain the teak, the padouk, the cutch, the ironwood the red sanders, sandal and any other of those trees, which, on account of special qualities, command a sale beyond the local market and exceptional prices, and in which the application of sylvicultural principles is consequently mainly directed towards

increasing the proportion of the more valuable species in the crops of the future.

(*b*) Those forests which are situated outside or near the margin of the habitat of such trees, and in which specially valuable species are absent, or sparsely represented. In such forests, which are treated for the local supply of timber and firewood only, no pronounced measures are required in favour of any particular species, though of course even here one or several kinds of trees are usually more valuable and useful than others, and their reproduction is naturally favoured by retaining them as parent trees for the new crops.

Amongst the deciduous forests of class (*a*), those containing the teak are the most important, not merely of this class but of all forests in India. They have frequently an additional value owing to the presence of cutch, ironwood, padouk and other valuable species. Their reproduction and improvement offers an inexhaustible study to the forester, and has probably received more attention in this respect than any other class of forests. Pure teak forests, and even such in which the teak forms the main part of the crop, are rare, especially in the eastern and more important zone of the tree, and are found only in specially favourable localities. In forests of this character reproduction presents no difficulties, a judicious exploitation and protection are all that is needed to ensure favourable results. Where, however, the teak tree is found intermixed with other species, and, as is often the case, forms only a small percentage of the mature crop, the chances of reproduction of the more valuable species are lessened with every mature teak tree which is removed. In such forests favourable results have been frequently achieved by girdling trees of the inferior classes round or in the vicinity of teak seed-bearers, thus producing an advance growth of the superior species before the mature stems are removed. All natural advance growth of teak is in such localities fostered even at the sacrifice of mature trees of less value, and though such interference may be of limited extent only in each case, the aggregate of the forests improved in this manner represents a large and important area.

The existence of a bamboo forest beneath the canopy of the tree-crop renders the natural reproduction of teak a question of special difficulty. The forests in which this difficulty exists are very extensive and in the eastern zone cover by far the largest portion of the teak areas. These bamboo forests vary in character in accordance with soil and situation, from the light cover of *Dendrocalamus strictus* to the dense shade of *Bambusa polymorpha* and *Cephalostachyum pergracile*. The former species, which flowers sporadically as well as gregariously, does not entirely prevent the natural reproduction of tree growth, and in forests with an undergrowth of this character, representatives of teak of all age-classes are usually found frequently accompanied by cutch. The dense cover, however, of the periodically and gregariously flowering bamboos renders natural reproduction of teak almost impossible, except during such periods of flowering. This fact accounts for the existence of tree-crops separated in age by the length of these periods. It is useless, in respect of these forests, to speculate and report annually on the progress made in natural tree reproduction, as a consequence of fire-protection, which only tends to make the shade denser and more prohibitive towards the growth of seedlings. In forests of this kind all measures must be and are preparatory to the next

occurrence of a general flowering, and thus the value of fire-protection is great as one of the means of securing healthy parent trees.

The prescriptions of all working-plans and the girdling proposals framed under their provisions, tend in the same direction in preserving a sufficiency of seed-bearers. A special feature in the treatment of these forests is the formation of teak *taungya* plantations.* These are scattered about in localities where, though situated within the natural habitat of the tree, the species is sparsely represented; and will, when a flowering of bamboos takes place, it is hoped, form so many centres from which the teak will naturally spread to other portions of the forest. These *taungya* plantations have in addition a considerable intrinsic value as timber-producing areas, for they already extend in Burma over 35,644 acres, and are the result of little more than twenty years' work. Some 2,000 acres a year have been added of late, and during the year under review the area was increased by 3,903 acres. Other cultural operations in bamboo forests, such as the planting up of strips, were undertaken with the same purpose of establishing belts or plots of parent trees. In many instances such operations have shown excellent results, but mostly at a cost which seems prohibitive if compared with *taungya* cultivation.

Insufficient advantage was taken during the first year of the gregarious flowering of myinwah (*Dendrocalamus strictus*) which took place in the Bawbin and Toungnyo reserves in Lower Burma in 1893-94, but experience shows that useful arboricultural operations may be undertaken, amongst this species at least, for a considerable number of years, subsequent to its seeding and before the new cover is fully re-established.

8. A general flowering of kya-thounwa (*Bambusa polymorpha*) is expected to take place in Burma within the next few years, and as the fully grown forest of this species prohibited tree reproduction of any kind, systematic preparations, in order to take full advantage of the expected opportunity, are under consideration. It is believed that this species of bamboo, like some of the other gregariously flowering kinds, will send out no fresh shoots in the year previous to seeding, and thus give a timely warning. It is also probable that its clumps will die without seeding if felled just before it flowers, and that a clear field may thus be obtained for the growth of teak seed. The operations which will follow the actual seeding, and perhaps even the first cultural treatment indicated, will probably necessitate the extensive use of fire, and this is a delicate procedure which cannot, and must not, be extended beyond manageable limits, as it is essential that the fires should, as far as possible, be retained in the areas operated upon, and that once cultivated, they should be scrupulously protected.

Some time ago it was asserted by botanical authorities that the continued cutting of the young bamboo shoots would weaken the parent clump to such an extent that it would probably die within three years. It was with good grounds believed that if this assertion proved to be correct, the difficulty of naturally reproducing teak forests with an undergrowth of *Bambusa*

* I have recently been asked what a teak *taungya* is, and take this opportunity of explaining how the destructive method of shifting cultivation in vogue, amongst nearly all uncivilized tribes, has been utilized for arboricultural purposes. The areas on which these people are permitted to cultivate are selected by Forest officers within the boundaries of fire-protected reserves, the places chosen being those in which valuable species are absent, or but sparsely represented. All forest growth on these areas is then felled and when dry is burnt, due care being taken to prevent the fire from spreading into the surrounding forests. The ground is cultivated in the beginning of the rains, and the agricultural crop is interplanted at such distance as may be fixed, usually 6′ by 6′, with teak, cutch, or such other species as it may be desirable to establish. At the beginning of the second year a certain fixed rate is paid for every 100 well-established plants. This method of tree-planting was first introduced in Burma, where the areas brought under shifting cultivation are called "taungyas." If utilized for the cultivation of teak they were called teak *taungyas*, if for cutch, cutch *taungyas*. As the name is well established in the province where the method originated and has been used in some other provinces, it would seem advisable to apply it to all India instead of using the numerous local names, and to accept the expression "arbori-taungya" for all cultural operations of this kind.

polymorpha at all times, and not merely for a few short years during the seeding of the bamboos, would have been solved, and experiments in this direction have been continuously carried on in several divisions in Burma for the last four years. The results of these experiments are as yet inconclusive. They have, it seems, proved that the removal of the young shoots year after year does not lead to the death of the parent clump, or to any great apparent loss in its vigour; but it was nevertheless found that the amount of shade cast on the ground had been materially lessened in consequence of these operations. Under these circumstances it seems advisable that the experiments should be continued for some years at least and that the efforts to reduce the vitality of the bamboos might be assisted by the removal of the mature stems as well on the experimental areas. The point in question, *viz.* the natural reproduction of teak independently of the flowering of bamboos, is of sufficient importance to warrant any trouble and expense in its satisfactory solution, and in case the annual cutting of the new shoots, if carried out in addition to a heavy working of the mature crop, would remove the difficulty, practical effect, on a considerable scale, could be given to this scheme by a system of free licenses granted with the condition that the new shoots of the year should be cut at the same time. The removal of new shoots during subsequent years would be a cheap operation.

The Madras report, which contains an excellent *resumé* on reproduction in Appendix G, shows that a fair reproduction of teak, ironwood and *Terminalia tomentosa* attended the gregarious flowering of bamboos on the Godavery river. Experiments made in the introduction of arbori-taungya cultivation in North Malabar have also met with success, and might probably with advantage be extended to other parts of the country, especially to South Canara, where the paucity of parent trees of the more valuable kinds is reported to be the chief reason for the absence of seedlings of these species. The good results obtained with teak taungya cultivation in Coorg is also worthy of note.

The natural reproduction, especially of teak, in the north-western teak zone, including principal centres of the tree (the Panch Mahals in the Bombay Presidency, the Melghat in the Berars and the Ahiri forest in the south of the Central Provinces) has been reported as satisfactory throughout, where fires have been excluded. In the Panch Mahals, which are specially favourably situated for export to large local markets, this problem has not as yet been solved satisfactorily, and the young crop has as yet been cut down and decimated year after year over the greater part of the area. Dense bamboo crops do not interfere with natural reproduction in this zone to the same extent as in Burma, nor are the varieties of other less valuable trees so plentiful as in that country.

The natural reproduction of cutch is, except on the limits of its habitat, very satisfactory. In Burma, where, owing to the great development of the cutch industry, the tree is of special value, its reproduction is assisted by means of *taungyas*, considerable areas of which are cultivated year after year with great success.

The natural reproduction of ironwood (*Xylia dolabriformis*), is, even more than that of teak and cutch, dependent on strict fire-protection; for, though the tree is a very free seeder, few of its seedlings survive even the slightest leaf fire. In the Rangoon Division in Burma where the tree was extensively exploited, during the construction of the railways, previous to fire-protection having been extended to the forests whence it was extracted, considerable areas have been more or less denuded of this valuable species.

A more careful examination of the deciduous forests in the Andamans has proved the existence of a satisfactory natural reproduction of the padouk tree.

The deciduous forests of the (*b*) class are to a great extent treated for more or less local markets, which as yet do not, as a rule, demand timber of large sizes in any great quantity, and the prescription of systematic plans for their treatment rely to a great extent on reproduction by coppice. The main principle applied to forests of this class is one of improvement in fellings, which frequently, as, for instance, in the Thana District in the Bombay Presidency and in many parts of the Central Provinces, assumes the features of a coppice under standards. The coppicing power of most of the species composing these forests has proved to be considerable, and reproduction from these operations have generally been fairly successful. A permanent maintenance of the forests cannot, however, be relied upon from coppice shoots only, and in some localities, as evinced in the working-plan of the Godhra Mahal forest in the Bombay Presidency, for instance, it has already been found that some of the most valuable species refuse to coppice any longer. It is under these circumstances of great importance that a good crop of seedlings is in most cases found mixed with the coppice crop, as the result of the operations by which, according to circumstances, a larger or smaller proportion of the healthiest parent trees are left on the ground. Where the crop of seedlings is insufficient and where the forests of this class are, owing to a large demand, of special value, the natural reproduction has been assisted by dibbling operations and even by planting. Special energy has in this respect been displayed for many years in several of the districts of the Bombay Presidency where cultural operations have been systematically carried out by the agency of forest guards at very little cost to the State. It is hardly possible to gauge the influence such operations may have had, but as a considerable admixture of seedlings in the forests, thus treated, is reported to exist, it may be assumed that this is, to a great extent, due to the continuous and energetic system of dibblings adopted.

The coppicing power of the various trees and its maintenance has as yet been incompletely studied, and the work in this respect, even under preconsidered plans, contains therefore a considerable element of uncertainty, which careful observations, records and time alone can eliminate.

Generally speaking, it may be said that reproduction in the deciduous forests has made good progress in all areas to which protection against fire and grazing could be extended, and that, though many and important questions remain as yet unsolved, considerable advance has been made in their rational treatment, and the consequent improvement in the character of the new growth. The deciduous forests pass into dry forest areas in which, owing to the limited rainfall, the forest flora is a poor one, and the individual trees are badly developed. Within these areas the difficulties regarding fire-protection diminish considerably, but reproduction without the strictest closure becomes more and more uncertain. The question how the dry forests in the Punjab *bars* came into existence, and how they reproduce themselves apart from coppice in any but exceptional favourably situated localities, is as yet by no means solved.

A sprinkling of seedlings is said to have been noticed in the Multan *rakhs*, but the process of reproduction from seed is so slow that a very long period of strict closure would be required to ensure the re-stocking of the forest in this way, and the results would probably be quite out of proportion to the value of the grass crops which would have to be sacrificed in the meantime. Luckily the coppicing power of the long-rooted species which constitute these forests is wonderful. Centuries seem to have made no difference, but during that time

these areas had not to supply fuel for a constantly increasing net-work of railways, and the continuity of their vigour of coppicing under these changed circumstances is by no means a certainty.

Observations made of late years in Baluchistan show that the conditions of natural reproduction of the juniper forest in that country are more favourable than they were previously supposed to be. This is fortunate, as the water available for irrigation is so scarce and valuable that the establishment of extensive artificial plantations had to be abandoned.

Of the fringes of arbori-vegetation found on the banks of rivers, those on the Indus and its tributaries on their courses through the plains are, owing to their situation in a dry zone, the most important. Natural reproduction on *sailaba* lands, where the trees are nourished by perennial percolation from the streams, and on the large riparian areas, subject to inundation during the hottest months, is as a rule plentiful and satisfactory. On the former lands the natural original establishment of forests is frequently a long and tedious process, but where they have been artificially constituted, as for instance in Shahdera near Lahore, they yield a considerable outturn and readily reproduce themselves both from seed and coppice.

Reproduction on the inundated areas in Sindh is reported to have been seriously curtailed by the construction of dams, which, it is asserted, considerably reduced the area formerly inundated, and exposed others to exceptionally high floods which prevented reproduction by a deposit of silt. This may be the case, but there seems no doubt that new forest areas will constitute themselves outside the system of embankments.

The reproduction of littoral forests, of which the Sundarbans is the most valuable representative, is always profuse, so long as the area is not raised above tide level which is a very gradual process and presumably accompanied by the same gradual addition of land elsewhere. In the Sundarbans, the sundri, the most valuable constituent of the forests, seeded abundantly and 77,000 seedlings, 18 inches high, were counted to the acre on the Bangasal island.

Reproduction in evergreen forests has been generally reported as plentiful and satisfactory in character, but these forests have nowhere as yet been extensively worked, and great difficulties will no doubt be encountered, where this happens on account of the very luxuriance of vegetation, which it will be difficult to guide in the direction most desired.

The caoutchouc-yielding *Fici* grow mostly outside the sphere of safe observation in forest inhabited by more or less savage tribes and little is known as regards their reproduction.

The total expenditure on cultural operations undertaken in aid of natural reproduction, excluding the establishment of *taungya* plantations, which are for this purpose classed as artificial cultivation was distributed over the various provinces as follows:—

	Rs.		Rs.
Bengal	3,392	Coorg	1,036
North-Western Provinces and Oudh	8,100	Ajmere	...
Punjab	3,031	Baluchistan	585
Central Provinces	1,745	Andamans	1,524
Burma (Lower)	2,875	Berar	757
Burma (Upper)	57	Madras	6,211
Assam	17	Bombay	13,223

Total Rs. 42,553

The following table shows the progress made during the year in the artificial cultivations of compact areas, including regular plantations and *taungyas* :—

PROVINCE.	AREA, IN ACRES.												SPECIES WITH WHICH CULTIVATED.
	AT COMMENCEMENT OF THE YEAR.			ADDED DURING THE YEAR.			EXCLUDED DURING THE YEAR.			AT CLOSE OF THE YEAR.			
	Regular Plantations.	Taungyas.	TOTAL.	Regular Plantations.	Taungyas.	TOTAL.	Regular Plantations.	Taungyas.	TOTAL.	Regular Plantations.	Taungyas.	TOTAL.	
Bengal	3,193	...	3,193	...	...	...	...	...	...	3,193	...	3,193	*Mesua ferrea, Lagerstræmia Regina*, India-rubber, mahogany and teak.
North-Western Provinces and Oudh.	3,119	...	3,119	...	...	...	...	...	...	3,119	...	3,119	*Pinus Deodara* and *excelsa*, *Cupressus torulosa*, *Betula acuminata*, *Sterculia*, *Shorea robusta*, *Cedrela Toona*, *Dalbergia latifolia*, teak, oak and European fruit trees.
Punjab	689	...	689	133	...	133	330	...	330	492	...	492	*Pinus longifolia* and *Deodara*, *Robinia pseudo-acacia*, carob, oak and European fruit trees.
Burma (Lower)	3,996	31,654	35,650	15	3,998	3,913	10	...	10	4,001	35,652	39,653	Teak and catch.
Burma (Upper)	111	87	198	40	453	528	6	132	138	145	443	588	*Pinus Deodara*, *Khasya* and *longifolia*, *Cupressus torulosa*, *Eucalypti*, teak, catch, Indian oak and European fruit trees.
Assam	2,479	...	2,479	...	...	...	...	...	...	2,479	...	2,479	*Ceara-rubber*, *Castilloa elastica*, *Lagerstræmia Regina*, *Pithecolobium saman*, *Musa textilis*, *Cassia Fistula*, *Artocarpus Chaplasha*, *Dalbergia Sissoo*, *Cedrela Toona*, *Mesua ferrea*, *Terminalia tomentosa*, *Acacia Catechu*, *Landolphia*, teak, cinchona and bamboos.
Coorg	1,892	...	1,892	110	...	110	...	...	...	2,002	...	2,002	Sandal and teak.
Ajmere	760	...	760	130	...	130	...	...	...	890	...	890	*Acacia arabica*, *Catechu* and *ruperis*, *Prosopis spicigera*, *Dalbergia Sissoo*, *Tecoma undulata*, *Butea latifolia*, *Terminalia bellerica*, *Eugenia Jambolana*, bamboo and mango.
Baluchistan	2,733	...	2,733	...	...	...	1,303	...	1,303	1,430	...	1,430	*Pinus Deodara*, *Tamarix gallica* and *articulata*, *Robinia pseudo-acacia*, willow, ash, walnut, pistachio, poplar, mulberry and European fruit trees.
Andamans	81	...	81	...	...	...	...	...	...	81	...	81	*Pterocarpus indicus*, *Mesua ferrea*, *Negria bracteata*, teak and Burmese bamboos.
TOTAL	19,243	31,741	50,984	429	4,386	4,814	1,949	132	1,981	17,822	36,095	53,817	
Berar	655	...	655	...	...	...	...	...	...	655	...	655	Teak and bamboos.
Total Bengal Presidency	19,898	31,741	51,639	429	4,386	4,814	1,949	132	1,981	18,477	35,995	54,472	
Madras	46,465	...	46,465	(a) 1,143	...	1,143	(b) 1,465	...	1,465	(c) 46,143	...	46,143	*Pterocarpus santalinus* and *Marsupium*, *Swietenia margosyla*, *Casuarina*, teak sandal, cearo-rubber and bamboo.
Bombay	13,215	...	13,215	510	...	510	3,594	...	3,594	10,131	...	10,131	*Acacia arabica*, *Casuarina*, and teak.
GRAND TOTAL	81,578	31,741	113,319	2,091	4,386	6,467	6,908	132	7,040	76,751	35,995	112,746	

(a) Thirty-one acres obtained by rectification of previous area figures.
(b) Due to rectification of previous area figures.
(c) Includes 25,906 acres of *topes*.

N. B.—Plantations which begin to yield major produce and are treated as forests have been excluded.

The total expenditure under this head was distributed over the various provinces as follows :—

	R		R
Bengal	940	Coorg	4,344
North-Western Provinces and Oudh	2,305	Ajmere	1,277
Punjab	1,589	Baluchistan	20,106
Central Provinces	...	Andamans	...
Burma (Lower)	66,281	Berar	...
Burma (Upper)	3,091	Madras	36,535
Assam	4,346	Bombay	4,017

Total R1,34,831

CHAPTER III.

WORKING AND OUTTURN.

The outturn of the forests is summarized in the following statement :—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
										RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.		
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
	C. feet.	No.	R	C. feet.	No.	R	C. feet.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	15,652,816	7,027,655	1,69,135	10,247,731	4,030,850	1,44,033	578,319	10,430,569	40,784	2,715	1,206	19	5,903	1,795	69	143	2,583	31
North-Western Provinces and Oudh.	14,748,110	13,881,390	2,67,220	1,765,419	164,574	14,320	194,036	1,031,133	2,994	3,917	3,688	71	18,781	1,751	152	4,611	23 297	68
Punjab	4,217,102	827,714	1,19,330	2,017,540	...	1,18,201	24,499,689	232,475	2,00,425	2,516	315	71	7,185	...	574	6,153	60	52
Central Provinces	13,039,939	16,258,221	6,03,984	...	...	...	...	...	...	668	791	31	...	...	...	...	...	...
Burma (Lower)	4,533,765	3,833,720	40,029	14,643,925	14,611,165	36,291	...	...	...	235	567	6	(a)	(a)	(d)	...	...	...
Burma (Upper)	4,613,617	1,102,933	19,922	11,626,469	21,641,594	2,21,009	...	...	...	1,111	265	5	(a)	(a)	(a)	...	...	...
Assam	1,722,617	1,229,293	7,826	...	...	...	5,137,993	4,030,726	61,171	302	332	2	...	...	...	369	292	4
Coorg	414,639	3,103	3,518	280,324	421,123	14,158	...	...	...	1,742	15	14	423	643	21	...	...	...
Ajmere	245,196	18,385	63,976	...	...	...	...	...	...	1,764	132	661	...	...	...	...	...	...
Baluchistan	9,291	...	9,576	..	...	...	373,725	...	24	83	...	...	...	...	...	373,725	...	24
Andamans	800,320	194,000	561	...	...	...	925,282	552,339	2,278	3,087	2,657	8	...	...	...	492	293	1
Berar	1,516,733	2,016,147	63,183	...	...	...	...	...	...	324	431	13	...	...	...	...	...	...
Madras(b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay(c)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Chapter IV of the Lower Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.

(b) The forests of the Madras Presidency yielded 14,903,393 cubic feet of timber and fuel; 29,703,195 bamboos; and R8,91,070 worth of minor produce. Dividing these figures by the 18,700 square miles under the Forest Department, the average outturn per square mile was 789 cubic feet of timber and fuel, 1,585 bamboos, and R47 worth of minor produce.

(c) The forests of the Bombay Presidency yielded 41,273,818 cubic feet of timber and fuel (exclusive of 12,755 rafters and quantities of sandalwood, the cubic contents of which is not given); 8,511,491 bamboos (besides head-loads and cart-loads, etc.); and R7,29,688 worth of minor produce. Dividing these figures by the 14,924 square miles under the Forest Department, the average outturn per square mile was 2,661 cubic feet of timber and fuel, 569 bamboos, and R49 worth of minor produce (not taking into account the rafters, sandalwood, and head-loads, cart-loads, etc., of bamboos above mentioned).

Included in the above are large quantities of produce given free to right-holders, the amounts of which have not been fully shown in the forms.

The following statement compares the amounts of forest produce prepared and exported by Government agency with those removed by purchasers :—

PROVINCE.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE.	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	20,927	4,301,497	119,510	14,634,282	35,975	18,013,299	463	1,29,545
N.-W. P. and Oudh	362,504	4,241,375	1,986,143	4,769,001	711,618	14,143,358	26,044	1,93,178
Punjab	646,183	492,420	2,816,786	1,397,834	579,034	185,155	2,366	2,08,011
Central Provinces	225,296	794,997	2,616,040	9,511,580	113,030	15,082,333	56,053	5,52,737
Burma (Lower)	1,939,053	6,390,172	...	7,495,749	...	18,370,695	...	39,361
,, (Uppes)	357,428	11,332,017	1,533	3,595,115	4,700	22,739,928	1,241	2,40,350
Assam	66,972	2,529,326	20,682	943,244	2,548	2,922,282	86	66,486
Coorg	91,913	353,961	...	243,375	3,593	415,323	2,694	14,158
Ajmere	...	9,080	...	223,180	...	18,385	...	4,129
Baluchistan	345	1,202	8,080	373,389	...	...	529	934
Andamans	260,965	23,571	...	3,238	128,338	118,000	826	1,358
TOTAL	4,022,086	30,570,518	7,468,779	43,189,987	1,578,836	92,005,648	90,302	14,50,247
Berar	...	478,936	...	1,026,275	...	2,015,947	...	63,127
Total, Bengal Presidency.	4,022,086	31,049,454	7,468,779	44,216,262	1,578,836	94,021,595	90,302	15,13,374
Madras Presidency	374,145	2,964,873	2,186,122	9,839,061	36,881	29,716,807	21,516	5,58,986
Bombay ,,	1,331,033	6,509,264	18,401,860	14,912,331	520	3,458,109	76,836	6,52,837
GRAND TOTAL	5,727,264	39,923,591	28,056,761	68,967,654	1,616,237	132,196,511	1,88,654	30,25,197

The total produce removed by Government agency and by purchasers compares with that of the previous year as follows :—

Agency.	Timber.		Fuel.		Bamboos.		Minor produce.	
	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.
	C. ft.	C. ft.	C. ft.	C. ft.	Nos.	Nos.	R	R
By Government .	6,694,227	6,919,746	28,056,761	30,780,780	1,616,237	1,421,104	1,58,654	4,09,594
„ Purchasers .	39,985,659	39,536,902	69,791,064	78,098,638	132,196,511	127,385,118	30,25,197	33,65,304
Total .	46,679,986	46,456,648	97,847,825	103,879,468	133,812,748	128,806,222	32,13,851	37,74,898

This shows a falling off in the amount of timber collected by Government agency of 1,225,000 cubic feet, whilst there was an increase of 448,000 cubic feet exported by purchasers. Under fuel and bamboos there was a decrease under both heads; and under minor forest produce, a large increase took place in the amount collected by purchasers. On the whole it may be concluded that collections by Government agency are, as the forests become better opened out, and communications with the markets less difficult gradually giving way to export by purchasers themselves. It is considered that this mode of export should be encouraged as that by which forest produce can be placed on the markets in the greatest quantity and at the lowest price.

In the following table the total amounts of forest produce exported (excluding amounts given to village right-holders) during the year are contrasted with those of the previous year :—

Presidency.	Timber.		Fuel.		Bamboos.		Minor produce.	
	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.
	C. ft.	C. ft.	C. ft.	C. ft.	Nos.	Nos.	R	R
Bengal . . .	35,943,540	35,100,671	62,440,268	52,508,451	94,408,672	85,600,431	20,03,396	16,63,676
Madras . . .	3,026,332	2,739,018	12,183,983	12,025,183	25,233,460	29,753,689	9,203	8,50,502
Bombay . .	7,586,776	7,840,297	34,255,212	33,314,191	9,164,090	8,459,629	9,82,299	7,29,673
Total .	46,456,648	45,679,986	103,879,463	97,847,825	128,806,222	133,812,748	37,74,898	32,13,851

From the above it is to be noted that the outturn of timber fell off by 776,000 cubic feet, and of fuel by 11,031,000 cubic feet ; 5,006,000 more bamboos were exported, but the receipts from minor produce fell off by R5,61,000.

The following shows the details by provinces :—

Bengal.—Total exports, including amounts removed by right-holders, compare as follow with those of 1893-94 :—

Years.	Timber.	Fuel.	Total Wood.	Bamboos.	Minor Produce.
	C. ft.	C. ft.	C. ft.	Nos.	R
1894-95	4,493,234	30,195,622	34,688,856	22,049,274	2,74 572
1893-94	4,880,620	27,819,890	32,700,510	21,101,508	2,50,340
Difference in 1894-95 .	−387,386	+2,375,732	+1,988,346	+947,766	+24,232

There was thus a falling off in the amount of timber exported and an increase, especially in the case of fuel, under other heads. The decrease under timber occurred chiefly in the Sundarbans division where an abundant rice crop caused a falling off in the labour supply. Departmental works consisted almost entirely in the delivery of fire-wood to the troops at the Jelapahar cantonment and comprised only 20,927 cubic feet of timber, 119,510 cubic feet of fuel, and 35,975 bamboos.

North-Western Provinces and Oudh.—The following abstract from the Local Government's review shows the exports from the three circles compared with those of 1893-94 :—

Timber.

Circle.	1893-94.	1894-95.	Difference in 1894-95.
	C. ft.	C. ft.	C. ft.
Central	962,000	998,000	+36,000
Oudh	1,858,000	4,102,000	+2,244,000
School	914,000	805,000	—109,000
TOTAL	3,734,000	5,905,000	+2,171,000

Fuel.

Circle.	1893-94.	1894-95.	Difference in 1894-95.
	C. ft.	C. ft.	C. ft.
Central	4,056,000	4,018,000	—38,000
Oudh	2,515,000	4,921,000	+2,406,000
School	1,945,000	1,863,000	—82,000
TOTAL	8,516,000	10,802,000	+2,286,000

Minor-Produce.

Circle.	1893-94.	1894-95.	Difference in 1894-95.
	R	R	R
Central	2,61,678	2,77,862	+16,184
Oudh	1,46,178	1,04,090	—42,088
School	73,236	70,314	—2,922
TOTAL	4,81,092	4,52,266	—28,826

In the Kumaun division of the Central Circle there was a falling off under almost every head, otherwise the outturn of this circle would have been exceptionally large. In Oudh there were large increases both of timber and fuel, but the revenue from minor produce fell by R42,100. In the School Circle there were decreased outturns under every head, chiefly under drift and waif wood, and in material removed by right-holders.

Panjab.—The following table gives a summary of all produce removed from the forests, compared with the results of the previous year :—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft.	Nos.	R	R
By Government	646,183	2,816,786	579,034	1,383	983
„ Purchasers	492,420	1,397,884	188,155	2,01,716	6,295
„ Right-holders	143,740	24,923,555	...	1,88,993	44,235
„ Free-grants	295,730	48,183	...	1,046	2,305
Total, 1894-95	1,578,073	29,186,358	767,189	3,93,138	53,818
„ 1893-94	2,556,055	28,669,444	530,820	3,90,042	55,632

There has thus been a decrease in the outturn of timber of nearly a million cubic feet; consumption of fuel has increased by about half a million cubic feet and export of bamboos has increased by 286,000; 646,183 cubic feet of timber were exported by Government agency, and 2,816,786 cubic feet of fuel, whilst purchasers removed 492,420 cubic feet of timber, and 1,397,834 cubic feet of fuel. Large grants of forest-produce were given to free-grantees and to right-holders to an estimated value of R5,75,200 as follows:—

Material.	Value.
	R
Timber, 440,000 cubic feet.	13,700
Fuel, 25,000,000 „	3,25,000
Grass and Grazing	1,90,000
Minor produce	46,500
TOTAL .	5,75,200

Central Provinces.—The following table shows the gross yield and outturn of timber and fuel:—

	Timber.		Fuel.	
	Northern Circle.	Southern Circle.	Northern Circle.	Southern Circle.
	C. ft.	C. ft.	C. ft.	C. ft.
1893-94	351,002	988,585	3,790,385	10,723,999
1894-95	483,155	541,164	3,643,150	8,392,470
Difference in 1894-95 .	+132,153	—447,421	—147,235	—2,331,529

In the Northern Circle, only 1 per cent. of the timber and 3 per cent. of the fuel was exploited by departmental agency, whilst in the Southern Circle 39 and 28 per cent. respectively were thus exploited. Under minor forest-produce, the sales of myrabolans in the Northern Circle added largely to the receipts. The sales of bamboos show a considerable decrease. There is no reason to suppose that fewer cattle resorted to the forests for grazing than usual, but free grazing allowed to people in distressed tracts in the Northern Circle and more favourable rules for nomad cattle have caused a reduction in revenue from grazing dues of some R80,000.

Burma.—The quantity of timber exported from the forests of Lower Burma was as follows:—

By Government agency	1,989,053 cubic feet.
„ purchasers	6,490,172 „
Free-grants	81,075 „
Total 1894-95 . .	8,560,300 „
„ 1893-94 . .	9,171,604 „
Difference in 1894-95 .	— 611,304

From Upper Burma exports of timber were—

By Government agency	357,428 cubic feet.
„ Purchasers	11,332,017 „
Free-grants	316,013 „
Total 1894-95 . .	12,005,458 „
„ 1893-94 . .	12,458,658 „
Difference in 1894-95 .	— 453,000 „

The most important exports of teak were as follows:—

Tenasserim Circle .	Government agency	828,394 cubic feet.
	Messrs. MacGregor & Co.	668,456 „
	Trade licenses	28,433 „
Pegu Circle . .	Government agency	1,063,812 „
	Trade licenses	29,954 „
Eastern Circle .	Government agency	1,830 tons.
	Bombay Burma Trading Corporation . .	103,257 „
	Darwood & Co.	10,453 „
	Trade licenses	14,674 „
Western Circle .	Government agency	694 „
	Lessees	29,924 „
	Trade licenses	2,275 „

From the Eastern Circle 3,019 and from the Western Circle 2,665 tons of teak, were granted free.

Of woods other than teak, Government extracted 49,280 cubic feet in the Tenasserim Circle, while purchasers removed 345,030 cubic feet, of which 184,093 cubic feet were pyinkado. From the Pegu Circle 24,370 cubic feet were removed by Government and 42,157 by purchasers. Licenses for 151 tons of padouk and 38,775 tons of woods of other species were granted from the Eastern Circle. The outturn of pyinkado sleepers in Pyinmana was slightly greater than in 1893-94.

The following statement shows the outturn of fuel, bamboos and minor forest produce, compared with that of 1893-94 :—

Years.	Fuel.		Bamboos.		Minor Produce.	
	Lower Burma.	Upper Burma.	Lower Burma.	Upper Burma.	Lower Burma.	Upper Burma.
	C. ft.	C. ft.	Nos.	Nos.	R	R
1894-95 . . .	7,517,393	3,634,648	18,444,325	22,744,846	76,370	2,41,591
1893-94 . . .	5,967,750	4,386,490	19,164,773	19,630,423	58,959	2,89,247
Difference in 1894-95 .	+1,549,643	—751,842	—719,588	+3,114,423	+17,411	—656

The total exports, therefore, compare as follows :—

Years.	Timber.	Fuel.	Bamboos.	Minor Produce.
	C. ft.	C. ft.	Nos.	R
1894-95	20,565,758	11,152,041	41,189,731	317,961
1893-94	21,630,262	10,354,240	38,795,196	348,206
Difference in 1894-95 .	—1,064,504	+797,801	+2,394,535	—30,245

Assam.—The total outturn of timber and fuel from all classes of forests was 6,260,010 cubic feet against 6,662,665 cubic feet in the previous year; 1,122 017 cubic feet were exploited from reserved forests, and 5,137,993 cubic feet from unclassed forests. The following statement shows the agency of exploitation as contrasted with 1893-94 :—

Agency.	1894-95.	1893-94.	Difference in 1894-95.
	C. ft.	C. ft.	C. ft.
By Government	87,654	184,920	—97,266
„ Purchasers	3,472,570	3,825,081	—352,511
„ Free-grants	2,699,786	2,652,664	+47,122
Total . .	6,260,010	6,662,665	—402,655

The falling off in timber removed by Government agency is due chiefly to there having been less drift wood in the Cachar division. The decrease in the quantity of material removed by purchasers occurred, chiefly in the Kamrup and Lakhimpur divisions, and was due to the cessation of the demand for sleepers for the Assam-Bengal Railway and to the reduction of the royalty on timber standing on lands taken up for the cultivation of tea. There was a decrease of 7,854 in the number of tea boxes made, chiefly in the Darrang and Sibsagar divisions.

The outturn of rubber from Government forests rose from 779 to 979 maunds, while that of foreign rubber fell from 2,737 to 2,449 maunds. The net results of the year's rubber operations was an outturn of 3,428 maunds paying R42,823 against 3,515 maunds paying R42,220 in the previous year.

The outturn of bamboos was as follows compared with that of the previous year :—

Year.	Trade.	Free.	Trade.	Free.
	Nos.	Nos.	R	R
1893-94	3,159,639	1,927,474	8,673	6,045
1894-95	2,924,831	2,364,891*	7,958	6,982
Difference in 1894-95 .	—234,808	+437,417	—715	+937

*Includes 781 bundles.

Coorg.—The outturn of all forest produce compares as follows with that of the year 1893-94 :—

Agency.	Timber.		Sandal Wood.		Fuel.		Bamboos.		Grass and Grazing Value.		Other minor produce Value.	
	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.	1893-94.	1894-95.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R	R	R
By Government	83,701	83,713	7,400	8,200	...	...	2,200	3,593	2,615	2,694	...	...
„ purchasers	292,669	338,961	...	...	235,000	243,375	4,01,489	415,323	...	...	14,424	14,168
Free-grants	17,349	5,714	...	...	...	...	7,480	5,900	923	824	...	...
Total .	393,719	413,389	7,400	8,200	235,000	243,375	4,08,969	424,716	3,541	3,518	14,424	14,168

There has thus been a considerable increase in timber removed by purchasers, whilst timber exploited by Government agency remained much the same. The price of the sandal-wood sold was on an average R485-5-7 per ton against R417 in the previous year, whilst the cost of collection fell from R35-7-11 in 1893-94 to R28-6-7. Bamboos showed a slight increase, and the value of minor produce exported remained practically the same as the year before.

Ajmere.—The following table shows the gross yield and outturn compared with the previous year :—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Other produce.
	C. ft.	C. ft.	No.	R	R
By Government	...	..	...	...	...
„ Purchasers	9,980	223,180	18,385	3,663	1,391
Free-grants	11,236	800	...	79,733	36
Total, 1894-95 .	21,216	223,980	18,385	83,396	1,427
„ 1893-94 .	15,723	336,366	14,692	79,166	1,158
Difference in 1894-95 .	+5,492	—112,386	+3,693	+4,230	+269

There was thus an increase in the timber exploited of some 5,000 cubic feet, and a falling off in the fuel of more than 100,000 cubic feet. A slight increase occurred in bamboo exports. A large quantity of fodder-grass, valued at R78,039, was given free to right-holders.

Baluchistan.—The outturn of timber and fuel, etc., was as follows during the past two years :—

Agency.	Timber.	Fuel.	Grass and Grazing.	Minor Produce.
	1894-95.	1894-95.	1894-95.	1894-95.
	C. ft.	C. ft.	C. ft.	R
By Government . . .	345	8,080	299	230
„ Purchasers . . .	1,202	373,389	786	148
Free-grants	...	...	8,113	24
Total 1894-95 .	1,547	381,469	9.198	402
„ 1893-94 .	8,280	508,223	6,142	1,638
Difference in 1894-59 .	—6,733	—126,754	+3,056	—1,236

Owing to an abnormally mild winter the demand for fire-wood was much less than usual, and the same reason is advanced for the decreased demand for timber and for minor forest produce.

Andamans.—The total outturn of timber and fuel was 1,515,672 cubic feet, which was exported as follows :—

Agency.	Timber.	Fuel.	Total.
	C. ft.	C. ft.	C. ft.
By Government	260,965	...	260,965
„ Purchasers	23,571	3,238	26,809
„ District officers and free-grants	74,488	1,153,410	1,227,898
TOTAL	3,59,024	1,156,648	1,515,672

The utilization and disposal of forest produce were not so successful as in previous years. The stock of timber in the London docks was increased, but its quality fell off so much that it cannot be estimated worth more than 2 shillings a cubic foot. About 1,460 tons of padouk was shipped to England during the year, bringing the stock in depôt there to 4,468 tons. There was a decrease in the amount of fuel removed by purchasers, and the receipts from minor forest produce increased by R400.

Berar.—The outturn of the year compares with that of 1893-94 as follows :—

Year.	Timber.	Fuel.	Bamboos.	Grass.	Grazing.	Other minor produce.
	C. ft.	C. ft.	Nos.	R	R	R
1894-95	489,458	1,026,275	2,016,147	37,500	21,11,139	25,627
1893-94	644,990	1,195,772	2,163,674	43,678	1,75,962	42,846
Difference in 1894-95	—155,532	—169,497	—147,527	—6,178	+35,177	—17,219

There was thus a considerable falling off under all heads except "grazing" which shows a substantial increase of R35,177. The reasons for decreased outturn were due to increased free-grants to villagers, the credit of sales for trees on land available for cultivation to "Land Revenue" instead of "Forests," and a bad harvest which injuriously affected the demand.

The fall under minor forest produce was chiefly owing to short sales of myrabolans from which R17,460 less were realized than in the year before.

Madras.—The following statement gives the yield during 1893-94 and 1894-95 :—

Years.	Timber.	Fuel.	Bamboos.	Minor Produce.
	C. ft.	C. ft.	Nos.	R
1894-95	2,777,651	12,025,734	29,793,195	8,81,070
1893-94	3,072,496	12,184,996	25,304,261	7,89,661
Difference in 1894-95	—294,845	—159,262	+4,488,934	+91,409

There was thus a considerable falling off in the yield of timber and fuel, whilst bamboos and minor forest produce show an increase; the cost of collection by departmental agency was reduced in the case of timber and minor forest produce, but for fuel and bamboos it was much increased. During the year produce removed by departmental agency, purchasers and free-grants was as follows :—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	Nos.	R	R
By Government	374,145	2,186,122	36,881	...	21,516
„ Purchasers	2,364,873	9,839,061	29,716,807	3,28,293	5,30,693
Free-grants	38,633	551	39,507	1,16,314	46,216
TOTAL	2,777,651	12,025,734	29,793,195	4,44,607	5,98,425

Bombay.—The yield of timber and other produce may be summarized as follows :—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	Nos.	£	£
By Government	1,331,033	18,401,860	520	3,072	76,836
„ Purchasers	6,509,264	14,912,231	8,458,109	5,93,166	98,305
Free-grants	115,672	3,698	52,965	6,56,624	59,027
TOTAL .	7,956,969	33,317,889	8,511,491	12,42,862	2,34,168

There has been no change in the method of working in the forests of the Northern Circle, except in the Dangs. In Thana the coupe system continued to work well. In the Central Circle, operations both departmental and other were on a smaller scale than in the preceding year.

CHAPTER IV.

Financial Results.

The gross revenue realized during the Financial year was R1,67,88,880 against R1,77,13,020 realized in 1893-94, showing a falling off of nearly 9¼ lakhs of rupees. The surplus realized (74,15,590) also shows a falling off, compared with that of 1893-94, of R9,56,780. The year 1893-94 was, however, an exceptional year, and both revenue and surplus are nevertheless in excess of the averages for the past five years which stand at R1,59,49,013 and R73,45,662, respectively. The principal falling off in revenue, compared with 1893-94 were :—

	R
Central Provinces	1,25,350
Lower Burma	2,15,150
Upper ,,	1,33,170
Andamans	3,27,260

The following table shows the revenue and surplus of each province as compared with the averages of the previous five years :—

Provinces.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to gross Revenue (1894-95).	Net Revenue per square mile of land under control of Forest
	1894-95 (financial year ending 31st March 1896.)	Average for preceding 5 years (1889-90 to 1893-94).	1894-95 (financial year ending 31st March 1896).	Average for preceding 5 years (1889-90 to 1893-94).	1894-95 (financial year ending 31st March 1895).	Average for preceding 5 years (1889-90 to 1893-94).		
	R	R	R	R	R	R	Per cent.	R
Imperial	4,980	5,147	...	...	79,970	78,977	...	...
Bengal	7,95,670	7,66,431	3,98,280	3,62,284	...	...	50	30
North-Western Provinces and Oudh	16,58,250	16,59,190	7,21,940	7,42,767	...	...	42	185
Punjab	10,32,430	9,00,417	3,10,310	2,54,043	...	...	30	52
Central Provinces	10,03,630	12,18,974	32,570	4,15,073	...	...	3	1¼
Burma (Lower)	32,74,200	31,48,644	18,95,970	18,58,778	...	...	58	263
Burma (Upper)	21,62,580	18,30,099	16,22,820	14,47,492	...	...	75	368
Assam	4,35,090	3,82,750	1,63,080	1,14,591	...	...	36	9
Coorg	1,53,050	1,53,136	66,910	76,120	...	...	43	75
Ajmere	12,840	15,233	...	1,172	2,060	...	...	...
Baluchistan	16,300	17,998	...	...	24,610	21,454	...	...
Andamans	1,14,530	2,79,028	...	1,02,889	8,250	...	...	...
Forest School	2,790	1,636	...	...	63,190	43,387	...	...
Forest Surveys (Imperial)	80	668	...	...	29,760	23,823	...	...
Total	1,06,71,420	1,04,09,261	50,04,040	52,07,568	...	...	47	66
Berar	4,73,400	4,70,531	2,21,760	2,65,068	...	...	46	53
Forest Surveys (Berar)	...	...	...	...	...	1,293	...	...
Total Bengal Presidency	1,11,44,820	1,08,79,792	52,25,800	54,71,343	...	...	47	66
Madras	18,94,030	17,14,328	5,07,680	4,29,215	...	...	27	27
Bombay	37,50,030	33,54,893	16,82,110	14,45,104	...	...	45	112
GRAND TOTAL	1,67,88,880	1,59,49,013	74,15,590	73,45,662	...	...	44	66

The statement below gives an estimate of the value of the forest produce given free, or at reduced rates to right-holders and to free-grantees. The value of timber, fuel, bamboos, and minor forest produce has, so far as available information in annual reports and returns renders this possible, been estimated at half the average rates paid by purchasers. In the case of many provinces the amount of timber and fuel removed free have not been given, and in such cases the value of the produce as reported by Conservators has been entered. It would be useful if future annual reports were to include a statement showing the amount of forest produce removed free, together with the value thereof calculated at half the rates paid by purchasers—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Gra ss.	Total.
	R	R	R	R	R	R
Bengal	6,672	1,20,639	6,250	47,967	54,217	2,33,745
North-Western Provinces and Oudh.	94,895	21,079	1,075	3,182	80,569	2,00,800
Punjab	13,733	3,25,152	...	46,540	1,90,039	5,75,464
Central Provinces	40,372	37,757	33,187	30,419	94,552	2,36,287
Burma (Lower)	1,00,253	13,07,115	3 2,306	5,72,033	56,409	20,68,116
Burma (Upper)	2,45,714	57,484	86,200	32,052	6,955	4,28,405
Assam	1,17,909	2,12,415	9,519	86,744	1,33,304	5,59,891
Coorg	268	...	23	...	824	1,115
Ajmere	301	12	...	36	80,600	80,949
Baluchistan	...	...	...	24	8,113	8,137
Andamans	9,005	20,179	73	424	318	29,999
Berar	73,384	50,300	19,356	12,797	1,07,127	2,63,464
Madras	57,208	79,590	1,729	16,216	1,61,000	3,45,743
Bombay	26,299	1,52,486	22,254	59,027	6,56,624	9,16,690
Total	7,86,013	23,84,208	2,12,472	9,35,461	16,30,651	59,48,805

The proportion of expenditure to the gross revenue during the five years 1889-90 to 1893-94 averaged 54 per cent. which is a further decrease on the figure of 55 per cent. as shown in the review for 1893-94. The figures for quinquennial periods since 1869-70 are as follows :—

Quinquennial periods.	Gross revenue.	Expenditure.	Proportion of expenditure to gross revenue.
	R	R	Per cent.
1869-70 to 1873-74	56,31,061	39,33,431	70
1874-75 to 1878-79	66,60,397	45,76,852	69
1879-80 to 1883-84	88,17,214	56,12,689	64
1884-85 to 1888-89	1,16,68,148	74,26,956	64
1889-90 to 1893-94	1,59,49,013	85,33,423	54

The revenue and expenditure under the various heads, with the proportion of the gross receipts expended, were as follows :—

				Amount. R	
Gross Receipts	(a) Wood			1,23,57,050	
	(b) Minor forest produce			13 42,060	
	(c) Forest stamps and commutation fees for forest produce			7,25,820	
	(d) Grazing			15,71,410	
	(e) Revenue from forests not managed by Government			3 82,540	
	(f) Miscellaneous			4,10,000	
	TOTAL REVENUE			1,67,88,880	
				Amount. R	Proportion of Expenditure to gross Revenue. Per cent.
Expenditure	A Recurring.	(a) Administration.	(i) Superior Staff	21,05,090	12·54
			*(ii) Exchange compensation allowance.	2,31,390	1·38
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).	13,61,001	8·11
			(iv) Office Establishments (including Contingencies.)	7,30,440	4·35
		(b) Working	(1) Extraction	27,18,810	16·19
			(2) Roads and Buildings	4,07,620	2·43
			(3) Fire-protection	2,69,290	1·61
			(4) Cultural operations	3,09,640	1·84
			(5) Live-stock, stores and plant	2,18,250	1·30
			(6) Working-plans†	56,980	0·34
			(7) Rent for leased forests	1,78,560	1·06
			(8) Miscellaneous	64,430	0·38
		(c) Expenditure on realization of revenue from forests not managed by Government.		13,010	0·08
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School.)		95,799	0·57
			TOTAL	87,61,010	52·18
	B. Extraordinary.	(e) Forest Settlements		65,920	0·39
		(f) Forest Surveys		4,22 960	2·52
		(g) Forest Demarcation		1,23,400	0·74
			TOTAL	6,12 280	3·65
			GRAND TOTAL EXPENDITURE	93,73,290	55·83
			Net Revenue	74,15,590	44·17

* In the corresponding statement on page 46 of the "Review of Forest Administration in British India for the year 1893-94," the item "(h) Exchange compensation allowance" appearing against "Expenditure, B. Extraordinary" should be removed and placed second among the items shown against "Expenditure, A Recurring, (a) Administration;" items (ii) and (iii) in the latter being changed into items (iii) and (iv); and the figures opposite the "Totals" being altered accordingly.

† Exclusive of "B" charges.

The details by provinces are given below :—

Bengal.—The receipts for the Financial year were R7,95,670, some R6,000 less than in the previous year; the expenditure was R3,97,390 against R4,04,040 in 1893-94; and the surplus revenue remained practically unaltered at R3,98,280. The proportion of surplus to revenue was 50 per cent., and the net revenue per square mile was R30.

North-Western Provinces and Oudh.—The following shows the revenue, expenditure and surplus for the three circles for the forest year (1st July 1894 to 30th June 1895) contrasted with those of the previous year, and the averages of the preceding five financial years :—

Circle.	Receipts.			Expenditure.			Surplus.		
	Average of 5 Financial years 1888-89 to 1892-93.	Forest year 1893-94.	Forest year 1894-95.	Average of 5 Financial years 1888-89 to 1892-93.	Forest year 1893-94.	Forest year 1894-95.	Average of 5 Financial years 1888-89 to 1892-93.	Forest year 1893-94.	Forest year 1894-95.
	R	R	R	R	R	R	R	R	R
Central . . .	5,59,615	5,81,877	6,20,783	2,64,856	3,17,659	3,61,682	2,94,759	2,64,218	2,59,101
Oudh . . .	6,98,038	6,76,417	6,09,509	3,81,887	3,37,307	3,12,659	3,16,151	3,39,110	2,96,850
School . . .	3,82,124	3,78,431	4,34,451	2,74,151	3,02,629	2,94,870	1,07,973	75,802	1,39,581
Total .	16,39,777	16,36,725	16,64,743	9,20,894	9,57,595	9,69,211	7,18,883	6,79,130	6,95,532

For the Financial year ending the 31st March 1895, the revenue realised was R16,58,250, the expenditure R9,36,310 and the surplus R7,21,940.

The gross receipts of the provinces thus show a progressive increase. The surplus of the year is, however, owing to increased expenditure, less than the average of the five preceding years. In the Kumaun division of the Central Circle, a falling off in receipts occurred under almost every head, more particularly timber, and this alone prevented the receipts in this circle being exceptionally high. The accumulated stocks in the Oudh Circle are on the eve of disappearing, but it is hoped that with the growing facilities for export afforded by the new railways that this circle will continue to show a good balance sheet.

Punjab.—Although there was a considerable decrease in the outturn of timber, the financial receipts were satisfactory, and the surplus was higher than in the previous year. This is in some degree to be attributed to clearances and advanced sales in the Shahdara depôt which may perhaps affect the revenue of subsequent years. The net revenue of the Forest year amounts to 31·8 per cent. of the gross revenue. This is low, but the value of forest produce given free of charge to grantees and right-holders is very large (estimated value R5,75,400). The receipts, charges and surplus of the Financial year compare with those of the previous year as follows:—

Year.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross revenue.
	R	R	R	Per cent.
1894-95	10,32,430	7,22,120	3,10,310	30
1893-94	9,13,300	6,36,430	2,76,870	30
Increase in 1894-95 .	1,19,130	85,690	33,440	...

Central Provinces.—For the Financial year the receipts were the lowest since 1886-87, whilst the charges were the highest on record, and the surplus of R32,570 is the lowest since 1868-69. It is but to be expected that the policy adopted since 1892-93 must result for some years to come in a diminution of the receipts of the department. These receipts have decreased during the last three years from R13,59,900 to R12,30,800, R11,34,400 and R10,08,600, respectively. The percentage of surplus to gross revenue has at the same time fallen from 41 per cent. to 39, 18, and 3 per cent. The net revenue per square mile of land under the control of the Forest Department stands now at only R1¼, by far the lowest of any province in India and Burma. It must however not be lost sight of that forest produce to the value of some 2½ lakhs of rupees has been given away free to grantees and village right-holders.

Burma.—In marked contrast to the forests of the Central Provinces (where of course conditions are altogether different) the net revenue per square mile, amounted in Lower Burma to R268 and in Upper Burma to R368. The total financial results are shown in the following table :—

	Circle.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross revenue.
		R	R	R	Per cent.
Forest year.	Pegu	19,62,240	7,19,045	12,43,195	63
	Tenasserim	14,15,659	5,97,790	8,17,869	58
	Total Lower Burma	33,77,899	(a) 13,16,835	20,61,064	61
	Eastern	17,32,475	3,29,837	14,02,638	81
	Western	4,85,512	2,17,829	2,67,683	55
	Total Upper Burma	22,17,987	5,47,666	16,70,321	75
	Grand Total Burma, 1894-95	55,95,886	18,64,501	37,31,385	67
	" " " 1893-94	58,25,093	18,17,655	40,07,438	69
	Difference in 1894-95	—2,29,207	+46,846	—2,76,053	—2
Financial year.	Total Lower Burma	32,74,204	13,78,230	18,95,974	58
	Total Upper Burma	21,62,578	5,39,760	16,22,818	75
	Grand Total Burma, 1894-95	54,36,782	19,17,990	35,18,792	64
	" " " 1893-94	57,85,100	18,62,510	39,22,590	68
	Difference in 1894-95	—3,48,318	+55,264	—4,06,582	—4
	Average for the five years ending 1893-94. Lower Burma	31,48,644	12,89,866	18,58,778	59
	Average for the five years ending 1893-94. Upper Burma	18,30,609	3,82,517	14,47,492	79
	TOTAL	49,78,053	16,72,383	33,06,270	66

(a) Exclusive of about R60,000 on account of forest surveys executed by the Survey of India Department.

The gross and net revenues showed a decreaase of R3,48,318 and R4,06,582 respectively, if compared with the exceptionally high figures of 1893-94, but were in excess of the averages of the last five years by R4,58,129 and R2,09,738, respectively.

Assam.—The financial results of the Forest year show a surplus of R1,58,281 against R2,27,390 in 1893-94. During the Financial year the receipts were R4,35,091, and the surplus R1,63,080. Whilst the net revenue per square mile was only R9. The following statement affords a comparison between the financial results obtained in the year under review and those secured in 1893-94 :—

	Year.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross Revenue.
		R	R	R	Per cent.
Forest year ending 30th June.	1894-95	4,44,706	2,86,425	1,58 281	36
	1893-94	4,92,811	2,65,421	2,27,390	46
	Difference in 1894-95	— 48,105	+ 21,004	—69,109	—11
Financial year ending 31st March.	1894-95	4,35,091	2,72,010	1,63,080	36
	1893-94	4,88,500	2,68,220	2,20,280	45
	Difference in 1894-95	— 53,409	+ 8,614	— 62,023	—9
	Average for the five years ending 1893-94.	3,82,750	2,68,159	1,14,591	30

Coorg.—The financial results were as follows compared with those for the preceding year:—

Year.		Receipts.	Charges.	Surplus.	Proportion of surplus to gross receipts.
		R	R	R	Per cent.
Forest year	1894-95	1,44,170	93,842	50,328	35
	1893-94	1,75,991	90,946	85,045	48
	Difference in 1894-95	—31,821	+ 2,896	—34,717	—13
Financial year	1894-95	1,53,047	86,140	66,910	43
	1893-94	1,73,786	86,892	86,894	50
	Difference in 1894-95	—20,739	—752	—19,984	—7
	Average for the five years ending 1893-94.	1,53,136	77,016	76,120	50

The receipts were less by R20,739, of which the greater part is accounted for by a decline in the sale of sandal-wood, and to a fall in the sales of other timbers.

Ajmere.—The financial results of the last seven Financial years were as follows:—

	1889-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.
	R	R	R	R	R	R	R
Receipts	13,574	11,592	15,266	19,799	14,890	14,620	12,840
Expenditure	15,676	12,701	12,720	13,986	15,000	15,900	14,900
Surplus or Deficit	—2,102	—1,109	+ 2,546	+ 5,813	—110	—1,280	—2,060

For the Forest year 1894-95 the deficit was R1,907. The fall off in the receipts during the year was owing to the Marwar Durbar having reduced the frontier duty on fire-wood, and to there being a plentiful supply of grass outside the reserves owing to a favourable season.

Baluchistan.—The financial results tabulated below for the Forest and the Financial years show that though the gross income decreased considerably, the deficit was much smaller than the year 1893-94, when it amounted to R43,600.

Year.		Receipts.	Charges.	Deficit.
		R	R	R
Forest year	1894-95	15,191	44,548	29,357
	1893-94	21,395	63,829	42,434
	Difference in 1894-95	—6,204	—19,281	—13,077
Financial year	1894-95	16,298	40,908	24,610
	1893-94	20,731	63,728	42,997
	Difference in 1894-95	—4,433	—22,820	—18,387
	Average for five years ending 1893-94	17,998	39,452	21,454

Andamans.—The financial results of the year were unsatisfactory. This was due to padouk cargoes not having been sold in London, and to the demand of the Settlement for timber having been restricted, the figures for the five Financial years since 1890-91 are as follows :—

	Revenue.	Expenditure.	Surplus.	Deficit.
	₹	₹	₹	₹
1890-91	1,58,326	1,30,052	28,274	...
1891-92	2,72,338	1,79,909	92,429	...
1892-93	3,60,490	2,31,210	1,29,280	...
1893-94	4,41,790	2,44,550	1,97,240	...
1894-95	1,14,530	1,22,780	...	8,250

The conversion of a surplus of ₹1,97240 in 1893-94 into a deficit of ₹8,250 in 1894-95 is remarkable; and this unfortunate result was due in some measure to a careless selection of the padouk timber sent to the London market.

Berar.—The extension of various concessions, combined with other causes of a more temporary nature, occasioned a fall of revenue under all the main heads except grazing. The financial results compared with those of the previous year were as follows :—

Year.		Receipts.	Charges.	Surplus.	Proportion of surplus to gross revenue.
		₹	₹	₹	Per cent.
Forest year (ending 30th June 1895).	1894-95 . . .	4,66,614	2,49,188	2,16,826	46
	1893-94 . . .	4,79,475	2,64,318	2,15,157	45
	Difference in 1894-95 .	−13,461	−15,130	+1,669	+1
Financial year (ending 31st March 1895).	1894-95 . . .	4,73,400	2,51,610	2,21,760	46
	1893-94 . . .	4,82,800	2,54,250	2,28,550	47
	Difference in 1894-95 .	−8,600	−2,610	−6,790	−1
	Average for the 5 years ending 1893-94 .	4,70,531	2,05,463	2,65,068	56

The proportion of surplus to gross revenue is 10 per cent. below the average of the preceding ten years. It is noteworthy that the receipts for grazing in which a decline was anticipated should have increased instead of falling off.

Madras.—The subjoined statement summarizes the financial results of the Forest year.

Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	₹	₹	₹	Per cent.
Northern	6,09,343	3,69,870	2,39,473	39
Central	7,97,546	5,44,038	2,53,508	32
Southern	5,70,293	5,40,390	29,903	5
Total in 1894-95 .	19,77,182	14,54,298	5,22,884	26
„ 1893-94 .	19,43,715	13,68,411	5,75,304	30
Difference in 1894-95 .	+33,467	+85,887	−52,420	−4

The receipts during the Financial year were ₹18,94,030, and the surplus ₹5,07,680, nearly ₹80,000 more than the average of the five preceding years; it was, however, less than in the preceding year chiefly owing to increased expenditure under establishments.

Bombay.—The financial result of the Forest year, and of the previous year are compared in the following statement :—

Circles.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross revenue.
	R	R	R	Per cent.
Northern	7,38,680	2,75,931	4,62,749	62
Central	7,84,401	5,42,471	2,41,930	31
Southern	15,25,028	8,15,680	7,09,348	46
Sindh	6,79,823	4,17,757	2,62,066	38
Total in 1894-95 .	37,27,932	20,51,839	16,76,093	45
„ „ 1893-94 .	37,85,692	20,97,028	16,88,664	45
Decrease in 1894-95 .	57,760	45,189	12,571	...

On the whole the year does not compare favourably with that of 1893-94, but the financial results were better than those of any year except this one. There was a slight decrease in revenue in all circles except Sindh. The surplus for the financial year was R16,82,110.

CHAPTER V.

I.—Establishments.

The reorganization of the Forest subordinate establishment still remains unsettled to the detriment of the proper development of the forests and the successful conduct of practical operations under the provisions of working-plans. The want of sufficient establishment to carry out necessary works is an evil on which nearly all Conservators comment. During the year, at the request of the Government of India, the original proposals for the reorganization of the service were again considered and remodelled in accordance with the more liberal policy advocated in Government of India Circular No. 22 F. of 19th October 1894, and revised schemes were submitted, sanction to which is still awaited. In the meantime it has only been found possible to carry on the work of the department, by the entertainment of an excessive temporary establishment on which are borne several Rangers with the "higher standard certificate" of the Dehra Dun Forest School; whilst important ranges remain in the charge of untrained Foresters on R20 and R30 per mensem. Delicate operations, such as the marking of trees in thinnings and improvement fellings prescribed in working-plans had also frequently either to be carried out by similar inefficient agency, or to be left undone, thus causing either harm to the forests, or the loss of revenue.

II.—Experiments.

The efforts of the department are mainly directed to the propagation, tending and management of trees of indigenous species, and experiments in acclimatizing exotic species have not received much attention nor involved much expenditure. It has been previously noticed that the *Robinia pseudo-acacia* has shown itself a useful species to employ in reboisement operations on poor soil. It has been cultivated with considerable success in the Simla Division of the Punjab, but north of Lahore attempts to plant up this species have consistently failed. Attempts to introduce mahogany have also proved unsuccessful, as for instance in Buxa in Bengal.

In the Central Provinces and in Berar, the culture of the lac insect received some attention, and experiments made to favour its propagation met with some degree of success.

Experimental plantings of rubber were made in Bengal with poor success. In Assam, the Charduar rubber plantation was kept up; owing to doubts regarding the financial results of the undertaking work has been suspended and no extension (save 41 acres) has been made since 1892-93. The question of further extending the area of this plantation and the cultivation of the rubber tree (*Ficus elastica*) generally was under consideration, and reliable estimates of

the probable cost were under preparation. The details of work done in the various provinces were as follows :—

Bengal.—An experimental plantation of the *Caryota* palm was made in Darjeeling, but resulted in complete failure. The mahogany planted out in Buxa have all disappeared. Experiments in planting out rubber cuttings were continued, but many were unsuccessful.

North-Western Provinces and Oudh.—In the Central Circle arrangements were commenced for the introduction of resin works in the Naini Tal Division; and it is anticipated that, owing to the proximity of the railway, these may prove a success. Seeds of *Acacia saligna, pycnantha,* and *decurrens* were received from the Cape; also English oak, elm, larch, Weymouth pine and Douglas fir from Europe. It is too soon to record results. In the Chakrata garden some seed of *Cryptomeria japonica* was sown in beds and germinated freely; *Robinia* planted in March did well, whilst that put out during the rains failed.

Punjab.—*Robinia* has been very successfully cultivated in the Simla Division and less so in Jhelum. It would seem that this species is unsuited to higher latitudes than that of Lahore, as all experiments in the Northern Punjab seem to have been more or less unsuccessful. In Chenab, many of the *Albizzia* and *Robinia* died during the hot weather.

Central Provinces.—In the Southern Circle, some interesting experiments were made with a view to introducing the sandal tree, and there is reason to believe that they will be in some degree successful. In the same circle seed-lac was placed on 100 *palas* and 50 *kusum* trees, doing well on the former but failing on the latter. Lac was also put out over 510 acres in the Moharli and Warora Ranges, and the results of this experiment are being carefully watched. In the Northern Circle, experiments were made in reproducing the *kurra* tree under artificial conditions in Mandla, and to increase the propagation of lac.

Burma.—In the Tenasserim Circlean experiment was made to try and exterminate bamboos by constantly cutting out the green shoots of the year, so far the results have not proved very successful. The Vanilla which was removed from Mergui to Tavoy in 1893-94 is doing extremely well, but none of the plants have yet flowered. Those at Magayi in the Pegu Circle, however, flowered freely, but the pods did not come to anything. In the Eastern Circle, Upper Burma, a small number of *Pinus longifolia* were planted out. Of the trees put out in former experiments many have failed, but the pine plantation at Mogôk has commenced to show vigorous growth.

Assam and Coorg.—There were no experiments undertaken, but the formation of fruit gardens in Coorg is suggested and the Chief Commissioner approves of the idea.

Ajmere.—More marram grass (*Psamma arenaria*) was received and put out in the Pushkar, Danta, Sendra and Jalia nurseries; the plants came up but did not make good progress, and it would seem that the climate is unsuitable.

Baluchistan.—Experiments carried out persistently for a number of years have as yet yielded no very promising result. The climatic conditions are peculiar and adverse; great heat and prolonged summer drought are liable to occur at intervals of a few years, while the winter season is usually rigorous but not always accompanied by much snowfall. Plantings were continued, and at Shibu 76,012 plants and 192,299 cuttings were put out. There have been a great number of failures owing to the scarcity of water. A variety of American tree-seeds and of Himalayan cypress and deodar were sown in the Cantonment nursery, but the success obtained was poor.

Berar.—The culture of the lac insect in Ellichpur, Basim and Wun has been started and the first season's result has been very satisfactory. The date palms in Ellichpur and Akola are doing well, but grow very slowly.

Madras.—The *Casuarina* plantations were extended by some 300 acres, and it has been shown that this species can here be successfully reproduced by artificial means. Experimental plantings and sowings of exotics were carried out with a variety of species, details of which are given in an appendix to the Madras Annual Report. The experiments made in the past have been attended with a considerable amount of success, particularly in the case of bamboos.

Bombay.—Seeds of various kinds, such as *Lagerstræmia parviflora, Pinus Khasya, Cupressus torulosa* were obtained from the Andaman Islands, and other places and sown in the different divisions of the Central Circle. The Sindh babool seed germinated freely. Experiments in coffee planting are being carried on at Lingmala in the Satara division. In the Southern Circle a small quantity of seed of *Swietenia macrophylla* was sown in the Yellapur range, but none of the seedlings survived.

III.—Exports of Forest-produce.

The following table gives the quantities of forest-produce exported during the year :—

Articles of Forest-produce.	Quantity in tons of 20 cwt.; in the case of Teak, cubic tons.		Valuation at Port of shipment in 1894-95.	
	Average of five years, 1889-90 to 1893-94.	In 1894-95.	Total.	Per ton.
			R	R
Caoutchouc	480	463	11,51,458	2,487
Lac—				
Buttom	1,260	1,393	24,71 808	1,774
Shell	4,891	6,568	1,14,76,706	1,747
Stick and other kinds	55	77	1,15,655	1,502
Lac-dye	9	20	26,025	1,301
Sandal wood, ebony and other ornamental woods	Information not available		5,88,483	...
Catch and gambier	9 920	7,751	29,21,468	377
Myrabolans	37,258	61,156	46,49,763	76
Teak	53,330	56,495	57,01,299	101
Cardamoms	115	105	2,95,521	2,814
Total in 1894-95	...	134,028	2,93,98,186	...
„ 1893-94	...	103 651	2,41,49,708	...
Increase in 1894-95	...	30,377	52,48,478	...

IV.—Technical Education and Recruitment.

No changes have taken place in this respect ; the Imperial Service continues to be solely recruited through Cooper's Hill, and the Provincial Service is filled by recruits from the class of Rangers, who obtain their technical training at Dehra Dun or the College of Science at Poona.

A considerable number of Extra-Assistant Conservatorships have been created since 1891 under the reorganization of the department, and many of these appointments have been obtained by students who passed out through the Dehra College previous to 1893, who thus have gained fair prospects of further promotion in the Provincial Service. The result of this early promotion of a few officers who had the luck to enter the service at the right time has caused a continuous influx to the school of lads of English extraction and habits ; and the fact that the Provincial cadre when once filled can only be entered after a prolonged service in the Ranger class on a pay rising from R50 to R150 per mensem seems to be lost sight of by the parents and guardians of the young men competing for entrance into the Dehra College.

The pressure is already beginning to make itself felt, and most of the Provincial lists contain a number of young men of English extraction on a pay of R50 to R80, which is entirely insufficient to support them in the manner in which they have been brought up. The recent reorganization in Burma will occasion once more a certain relief in the pressure from below, and there is some prospect of the Siam Government indenting on India for some of its trained foresters of English birth. The reorganization of the Subordinate Service which is so much needed for a sound administration will also, when sanctioned, considerably improve the existing prospects ; for the scheme, as promulgated, provides at least for a proper gradation in the Ranger's class, and for a fair

proportion of appointments on R125 and R150. The fact, however, that the service, even after such reorganization has taken place, begins, as a rule, on a pay of R50 and may, when fully organized, eventually necessitate the gradual working up through all grades of the Ranger's class until the Provincial Service can be entered, would hardly seem to render it particularly suitable for lads of English extraction. No doubt a certain amount of selection will always govern the promotion from the Rangers class into the Provincial Service, and superior energy in the Subordinate Staff will always be rewarded in this way; but there are many trained Rangers of pure Native extraction who yield nothing in this respect to any one, and with whom the young Englishman has to compete on equal terms. The influx of European students to the Dehra College has to some extent been encouraged by the frequency with which the maximum stipends were sanctioned by Local Governments to students of this class, who thereby became at an early age more or less independent of suppor from their parents. It was moreover concluded that the grant of such stipends placed the Government under the obligation to provide employment for the stipendiary students so long as they obtained a pass certificate, and this belief was no doubt fostered by the previous action of the various Forest Administrations. In future the grant of such stipends will be considerably curtailed, especially as regards students of European extraction. The Government of India, in the resolution on the last School report, remarked as follows :—

"The proportion of students attending the School at their own expense, namely less than one-third, remained practically unchanged. If, as is hoped will be the case, the prospects of students passing out of the School are shortly improved by the strengthening of the permanent Subordinate Staff of the Forest Department throughout India, Local Governments and Administrations will be consulted as to the advisability of modifying the system of stipends. Meanwhile the Government of India are disposed to think that these stipends are granted too freely. Clause 12 (ix) of the Forest School Rules published with Resolution No. $\frac{20}{273-2}$F., dated 25th October 1895, in this Department allows Local Governments to grant them *in exceptional cases* to *selected* students, to an amount *not exceeding R50* in order to *assist* them through the School course; and clause 12 (iii) allows Conservators to test the fitness of candidates for Government employ by practical work in the forests before they are sent to the School. It is believed, however, that the stipends are almost always given of the maximum value of R50, and often without due regard to the existence of real need for assistance; while in very few provinces is any action taken under clause 12 (iii), in order to test the practical fitness of the recipients. It appears also that an impression has grown up that the undertaking by which a stipendiary student binds himself, under clause 12 (ix) of the rules, to serve Government for five years, creates a corresponding obligation on the part of Government to employ such students in the event of their passing. The Government of India can recognize no such obligation. Yet it is clear that its existence is believed in, from the fact that applications for stipends are not uncommonly received from parents who admit that they are in no need of pecuniary assistance, but base their applications upon the alleged fact that the receipt of a stipend is the only certain means of securing an appointment under Government. Any action that can give rise to or support such a belief is in the highest degree injurious to the interests of the service. If the stipendiary student is sure of his appointment upon securing a certificate, he has no inducement to exert himself further than is necessary to qualify; while his unpaid class-mate must exert himself to the utmost throughout the School course in order to gain employment by conspicuous success. Of the two the private student offers to the State the more substantial guarantee of a sound preparation for his future duties; and it may often be cheaper in the end for Government to take the better man and lose the amount of the stipends paid to the other.

There are indeed parts of India in which it is still impossible to procure suitable local candidates for training in the Forest School without the promise of stipends and a guarantee of employment if the student qualifies. The prospects are not sufficiently attractive, or are insufficiently known, or the School is too remote. Where such conditions obtain, the necessity of the case must prevail; but even under these circumstances it is obviously desirable that the selected local candidates should have had some training in the forests to test their fitness and liking for the practical work of the forests before they are sent to the School. But where such conditions do not obtain, the Government of India think that the Local Government should

preserve to itself an absolutely free hand in the selection from among the students of those who appear to be best fitted for the work to be done, without regard to whether they are stipendiaries or not; and that whenever in such provinces a stipend is granted, it should be explicitly stated that the grant conveys no sort of promise or pledge of employment.

Especially are the Government of India opposed to the grant of stipends to students of European extraction. The initial pay of a Ranger is not sufficient to support a European; and unless his parents are able to assist him during the first few years of his service, it is better that an English lad should not enter the Subordinate Staff. The Government of India cannot view without apprehension the constantly increasing number of young Englishmen on a pay of R50 or R60 who are borne on the provincial lists. If, on the other hand, his parents are able to supplement their son's salary during the first few years of service, the grant of a stipend is clearly neither necessary nor desirable."

During the twelve months ending 30th June 1895, the School continued under the direction of Mr. J. S. Gamble, M.A. The post of Deputy Director was temporarily occupied by Mr. J. Nisbet, *D. Oec.*, until the 23rd December 1894, when Mr. A. Smythies, B.A., the permanent incumbent, resumed his appointment. No other alterations were made in the teaching and examining staff, which was assisted by the Superintendent, Botanical Department, Northern India, the Superintendent of Forest Surveys, the Assistant Agricultural Chemist, and officers of the School Forest Circle.

The total number of students who attended the School, and were present on the 31st March 1895, was 98. Of these 62 were in the service of, or pecuniarily assisted by, Government, 4 were deputed by Native States, and 32 were private students Of these last, 5 came from the Bombay Presidency. Of the senior students, 34 out of a total of 42 in the upper class obtained the Higher Standard certificate; while all the students in the lower class passed the test prescribed.

V.—Forest Administration in Native States.

Copies of their Forest Administration Reports have been received by the Government of India from Mysore, Kashmir, Jeypore and Jodhpur. In Mysore and Kashmir, with a net forest revenue of R9,20,000 and R3,39,000, respectively, forest administration is, so far as can be judged from the reports, conducted much on the same lines as in British Provinces, and progress, especially in the selection and settlement of State forests and their permanent demarcation is well maintained.

The forest property in both these States is extremely valuable, and the steps now taken in securing its permanency are of the greatest importance. Considerable attention is paid to the protection of the forest areas, especially from fire, but though the chapters dealing with exploitation are very full and detailed, no mention is made in either of the reports of any progress made towards gauging the permanent possibility of the forests, and it is not shown whether the exploitation is in any way systematized on the basis of either material or area. Forest administration in the Jeypore and Jodhpur States is on a much smaller scale, but the progress reported seems, generally speaking, to be satisfactory. As regards the Jeypore report it is extremely difficult to reconcile Forms Nos. 54 and 55, from which it would appear that on 29,000 acres open to browsers, 1,32,341 goats and sheep and 2,502 camels had been permitted to graze either free or on payment, or nearly five animals per acre, not including cattle of other descriptions.

Forest conservancy, more or less systematically carried out is, however, by no means confined to these four States, which issue printed Administration Reports. There are many of the larger States, such as Nahan for instance, where this branch of the administration is fairly well organized. In Patiala also many forest areas are systematically worked, and a considerable number of the smaller States follow this example, in organizing their forest management

APPEN

Summary of the Revenue and Expenditure of the

Budget Heads.	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Central Provinces.	Burma (Lower).	Burma (Upper).	Assam.	Coorg.	Ajmere.	Baluchistan.
											Bengal Presidency
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	2,040	29,230	5,96,150	6,41,170	50,370	19,41,710	49,680	15,710	91,410	...	2,700
II.—Timber and other produce removed from the forests by consumers or purchasers.	2,940	7,33,350	9,99,410	2,87,310	9,24,510	8,18,990	20,57,230	3,37,210	50,770	12,480	1,020
III.—Drift and waif wood and confiscated forest produce.	...	7,900	22,990	77,230	3,820	1,69,580	27,290	9,770	30	...	...
IV.—Revenue from forests not managed by Government.	...	...	10,060	2,620	...	3,03,090	...	31,460	...	...	10,930
V.—Miscellaneous	...	25,190	29,610	24,100	29,990	49,500	28,380	40,910	1,810	360	1,650
Total Revenue .	4,980	7,95,670	16,58,250	10,32,430	10,08,630	32,74,200	21,62,580	4,35,000	4,53,050	12,840	16,300
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	...	10,720	2,29,200	2,51,000	71,090	5,55,960	43,670	3,410	10,330	...	1,000
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	31,800	43,680	2,140	1,22,010	14,660	7,350	22,820	...	...	...
III.—Drift and waif wood and confiscated forest produce.	...	2,310	8,990	19,470	90	99,700	19,430	130	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	2,120	...	...	8,110	...	...	...	...	2,420
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	11,680	81,680	90	...	...	9,570	...	...	...
VI.—Live-stock, stores, tools and plant	...	7,350	22,190	3,810	13,840	53,600	20,880	12,900	1,140	50	2,000
VII.—Communications and buildings	...	35,990	1,14,670	35,240	24,170	21,510	21,500	21,170	8,770	270	1,260
VIII.—Demarcation, improvement, and extension of forests.	...	26,800	1,08,850	26,050	2,33,470	2,04,730	49,520	34,950	18,990	1,600	8,870
IX.—Miscellaneous	...	2,050	7,770	1,120	4,060	5,970	6,300	1,600	1,120	...	60
Total A.—Conservancy and Works .	...	1,36,450	5,49,150	4,20,570	4,69,620	9,64,240	1,68,650	1,06,550	40,320	1,920	15,610
B.—Establishments.											
I.—Salaries	71,100	2,19,870	3,25,380	2,40,910	4,28,900	3,49,470	3,15,380	1,36,010	36,510	10,470	20,920
II.—Travelling allowances . . .	10,640	29,030	39,510	37,660	42,400	45,890	45,560	21,040	6,930	1,060	3,580
III.—Contingencies	3,210	11,240	22,270	22,980	35,340	18,630	10,170	8,410	2,380	1,450	800
Total B.—Establishments .	(a)84,950	2,60,940	3,87,160	3,01,550	5,06,440	4,13,990	3,71,110	1,65,460	45,820	12,980	25,300
Grand Total of Expenditure .	84,950	3,97,390	9,36,310	7,22,120	9,76,060	13,78,230	5,39,760	2,72,010	86,140	14,000	40,910
Surplus .	...	3,93,280	7,21,910	3,10,310	32,570	18,95,970	16,22,820	1,63,000	66,910	...	...
Deficit .	79,970	...	...	...	...	...	...	...	...	2,060	24,610

(a) Includes salary of the Inspector General and Assistant Inspector

DIX I.

Forest Department in India for the Financial year 1894-95.

(British Territories). Andamans.	Forest School.	Forest Surveys (Imperial).	Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand Total.	Budget Heads.
R	R	R	R	R	R	R	R	R	REVENUE.
1,11,000	...	...	35,31,200	3,82,280	17,54,720	56,65,250	...	56,65,260	I.—Timber and other produce removed from the forests by Government agency.
3,420	...	...	62,37,700	14,13,340	18,95,210	95,46,250	4,67,150	1,00,13,400	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	3,69,910	12,270	7,500	3,29,680	150	3,29,830	III.—Drift and wait wood and confiscated forest produce.
...	...	...	3,58,160	...	21,380	3,82,540	...	3,82,540	IV.—Revenue from forests not managed by Government.
110	2,790	80	2,34,450	86,140	71,160	3,91,750	6,100	3,97,850	V.—Miscellaneous.
1,14,530	2,790	80	1,06,71,420	18,94,030	37,50,030	1,63,15,480	4,73,400	1,67,88,880	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
67,000	...	...	12,44,240	1,60,300	7,27,280	21,31,820	...	21,31,820	I.—Timber and other produce removed from the forests by Government agency.
170	...	...	2,64,630	80,410	43,780	3,88,820	44,810	4,33,630	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,50,150	2,920	290	1,53,360	...	1,53,360	III.—Drift and wait wood and confiscated forest produce.
...	...	...	12,650	...	360	13,010	...	13,010	IV.—Revenue from forests not managed by Government.
...	...	...	1,03,020	18,140	40,280	1,61,440	17,120	1,78,560	V.—Rent of leased forests, and payments to shareholders in forests managed by Government.
22,320	900	4,250	1,65,230	40,690	6,020	2,11,940	7,210	2,19,150	VI.—Live-stock, stores, tools and plant
4,720	180	...	2,88,850	72,800	21,970	3,83,620	24,180	4,07,800	VII.—Communications and buildings.
2,220	...	3,560	7,19,580	3,73,690	2,34,070	12,27,340	21,550	12,48,890	VIII.—Demarcation, improvement, and extension of forests.
4,320	2,450	110	36,930	9,330	20,360	66,620	260	66,880	IX.—Miscellaneous.
1,00,750	3,530	7,920	29,85,280	6,58,280	10,94,410	47,37,970	1,15,130	48,53,100	Total A.—Conservancy and Works.
									B.—Establishments.
19,740	55,410	16,150	22,46,020	5,75,320	8,19,900	36,41,240	1,08,830	37,50,070	I.—Salaries.
2,090	4,590	...	2,90,780	1,16,420	1,14,270	5,21,470	15,630	5,37,100	II.—Travelling allowances.
200	2,450	5,770	1,45,300	36,330	39,340	2,20,970	12,050	2,33,020	III.—Contingencies.
22,030	62,450	21,920	26,82,100	7,28,070	9,73,510	43,83,680	1,36,510	45,20,190	Total B.—Establishments.
1,22,780	65,980	29,840	56,67,380	13,86,350	20,67,920	91,21,650	2,51,640	93,73,290	Grand Total of Expenditure.
...	...	...	50,01,040	5,07,680	16,82,110	71,93,830	2,21,760	71,15,590	Surplus.
8,250	63,190	29,760	...	...	...	...	...	...	Deficit.

General of Forests and their establishments and contingencies.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1870-71 to 1894-95.

REVENUE.

Provinces.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial†	3,107	2,231	2,771	1,225	1,144	1,165	2,190	1,36,772	16,716	47,214	18,287	27,497	39,732	32,997	25,574	14,766	5,189	4,847	4,017	4,759	6,376	6,688	5,240	2,680	4,980
Bengal	1,03,219	1,44,719	1,49,852	1,79,366	1,85,932	1,98,274	2,22,491	4,25,222	4,16,027	4,19,521	5,61,340	6,23,754	6,93,959	6,91,331	5,71,152	5,97,152	6,53,631	6,57,791	6,76,907	7,68,718	7,27,292	7,89,553	7,44,520	8,01,610	7,95,670
North-Western Provinces and Oudh	4,24,257	11,70,900	19,29,115	19,32,677	13,62,358	12,61,356	11,50,671	12,03,108	11,28,755	10,33,999	9,42,222	10,05,091	10,12,403	16,11,382	15,72,319	16,61,495	15,73,556	12,17,451	11,62,802	17,14,159	16,37,879	17,31,514	16,52,540	17,09,920	16,58,250
Punjab	9,47,236	7,10,216	6,52,963	7,32,529	8,34,971	9,09,831	5,98,751	6,83,711	5,60,619	6,49,819	6,71,078	6,83,308	7,66,760	9,10,177	7,49,352	8,50,519	11,27,277	7,96,936	10,15,763	9,21,713	8,31,376	10,20,071	8,12,630	9,13,200	10,32,130
Central Provinces	6,58,120	5,57,123	4,31,672	5,63,367	6,69,932	7,25,176	6,61,326	6,83,910	6,52,952	10,66,721	8,50,129	11,72,231	9,77,647	9,91,769	10,27,202	10,36,891	9,57,310	10,93,362	11,80,405	11,56,161	12,13,461	13,59,900	12,30,850	11,31,189	10,08,530
Burma (Lower)	8,18,121	7,72,160	8,27,569	10,68,621	10,74,892	17,79,020	15,41,403	16,03,032	11,27,562	11,20,190	15,16,613	22,31,801	25,03,596	25,09,215	16,70,982	20,22,859	19,96,667	22,13,497	25,69,305	31,31,716	26,77,671	28,58,114	25,63,370	34,69,350	32,74,208
Burma (Upper)	...	...	...	...	...	...	...	...	—	...	...	...	...	...	...	...	1,08,074	2,95,876	15,79,923	15,06,070	16,44,237	13,27,300	20,76,630	22,95,750	21,62,550
Assam	...	...	...	...	55,949	61,870	81,568	1,31,320	1,61,779	1,51,335	1,63,997	1,66,054	2,48,605	2,11,445	1,80,415	1,96,655	2,12,011	2,67,312	3,03,882	3,79,548	3,26,792	3,36,129	3,87,830	4,88,503	4,35,000
Coorg	72,141	92,465	91,423	1,10,234	58,015	1,07,460	75,927	1,01,015	52,020	1,01,786	87,857	1,09,361	1,33,022	87,822	1,13,233	89,386	99,294	1,27,028	1,36,182	92,753	1,35,561	1,82,897	1,59,680	1,73,790	1,53,050
Ajmere	...	...	24	304	292	216	905	3,002	1,251	1,861	1,121	4,055	7,126	8,193	19,156	9,697	11,274	15,230	13,574	11,592	16,286	19,799	14,830	14,620	12,810
Forest Surveys (Imperial)	...	...	...	...	...	21	...	...	63	28	272	...	348	26	234	292	231	40	315	229	2,104	257	529	240	80
Forest School	...	...	...	...	...	...	...	...	...	...	...	...	...	...	73	273	415	277	449	1,237	1,454	1,233	1,980	1,990	2,790
Andamans	7,373	5,880	6,962	4,181	5,516	5,363	4,679	1,301	5,561	2,127	27,731	18,497	20,858	21,702	12,213	23,941	31,870	1,01,962	1,06,075	1,02,195	1,58,326	2,72,332	3,60,190	4,11,780	1,14,530
Total	30,23,610	34,56,042	41,45,286	45,97,567	42,50,730	50,51,216	43,50,129	49,76,455	42,71,208	45,12,891	48,46,969	61,39,121	64,51,305	70,85,103	60,44,201	63,01,965	67,77,980	68,19,685	91,19,610	1,01,53,811	98,80,671	99,06,351	1,10,47,530	1,14,67,060	1,06,55,120
Madras	5,33,412	5,75,261	5,95,188	6,13,653	5,14,401	6,77,873	5,92,573	5,50,310	6,06,782	6,26,168	7,36,556	8,06,903	9,05,442	9,53,701	11,05,916	11,93,650	12,46,911	13,78,920	15,15,006	15,57,627	17,95,108	16,91,216	15,77,210	19,17,180	18,91,030
Bombay	11,68,491	11,50,215	11,46,405	11,88,089	12,21,051	12,48,572	12,26,653	12,61,522	11,81,891	15,21,722	15,22,997	18,23,117	20,90,353	25,03,100	27,78,842	33,66,226	30,32,576	30,32,577	23,59,190	34,37,693	32,23,220	32,84,649	32,69,550	37,94,350	37,50,030
Total (British India)	17,25,412	51,82,519	58,86,879	62,99,309	59,85,182	69,89,701	61,69,355	67,23,293	60,59,880	67,61,771	71,06,556	87,71,146	94,48,100	1,05,41,912	98,85,962	1,08,99,901	1,10,57,468	1,12,27,182	1,31,93,806	1,51,49,131	1,48,61,302	1,48,85,216	1,58,91,290	1,72,08,490	1,62,99,180
Berar	1,77,329	1,55,513	2,56,563	2,63,256	2,00,673	2,22,782	2,53,672	2,79,236	2,83,704	3,07,560	2,05,556	2,33,511	2,92,614	3,08,218	2,97,185	3,10,851	3,25,251	4,06,447	4,07,977	4,10,541	4,87,109	5,11,185	4,31,020	4,82,200	4,73,400
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	934	631	651	596	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...	...	14,379	18,616	5,039	4,752	6,039	14,962	14,031	14,063	5,053	13,897	15,724	20,609	19,050	20,730	16,900
Grand Total	19,12,752	53,38,032	61,43,442	65,62,565	62,49,856	72,13,573	64,22,932	70,02,529	63,43,491	70,72,271	73,27,483	90,23,273	97,45,153	1,05,54,882	1,01,90,170	1,12,05,315	1,13,98,456	1,16,48,228	1,36,98,451	1,55,03,572	1,49,67,135	1,54,17,010	1,63,41,340	1,77,12,020	1,67,82,280

* The figures in this statement have been revised by the Comptroller and Auditor General.
† Includes certain home receipts and undistributable and petty local items.

EXPENDITURE.

Provinces.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	51,423	65,550	67,156	79,246	81,210	88,239	44,004	98,099	63,956	73,816	65,291	77,635	87,263	93,266	95,206	88,235	86,269	78,626	85,199	81,211	85,611	65,783	1,07,270	80,840	84,950
Bengal	86,479	1,10,989	1,00,777	1,39,278	1,01,361	1,12,676	2,14,497	2,62,919	2,58,675	2,75,718	3,35,381	3,91,612	3,82,183	3,87,813	4,11,915	3,70,299	4,22,781	3,99,358	3,76,270	3,93,150	4,11,001	4,22,930	3,11,610	4,08,040	3,97,830
North-Western Provinces and Oudh	8,80,973	11,10,071	11,71,056	11,80,791	10,61,302	7,36,979	8,61,262	7,28,926	8,09,977	7,15,594	6,79,571	9,16,212	8,39,025	10,11,885	10,20,101	9,73,519	9,19,580	8,20,711	8,44,544	9,63,151	9,19,195	9,58,231	9,28,560	9,62,020	9,36,310
Punjab	11,95,659	7,07,619	8,90,369	6,11,556	6,58,983	5,56,911	5,25,695	5,20,631	5,23,551	4,80,678	4,95,261	5,16,269	5,09,758	6,53,146	5,58,070	6,75,483	7,16,510	6,77,912	5,08,823	6,45,855	6,53,011	6,40,275	6,56,270	6,36,430	7,22,120
Central Provinces	3,17,928	2,31,633	2,50,573	2,85,939	2,91,449	3,73,327	2,90,295	3,22,031	3,93,753	5,22,571	4,95,512	4,97,013	4,12,247	4,36,056	4,95,821	4,45,132	4,99,293	5,52,939	6,68,697	6,96,445	7,35,554	8,03,915	8,51,100	9,32,190	9,76,050
Burma (Lower)	4,00,851	3,79,217	3,36,759	4,75,301	6,63,547	8,15,659	10,05,551	8,58,231	7,18,402	7,53,190	7,12,563	11,50,281	12,28,955	12,17,824	12,12,233	11,50,952	10,75,830	10,32,691	12,31,944	13,32,844	10,26,471	12,25,121	13,63,250	13,41,640	13,78,220
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,85,129	2,73,800	3,02,315	3,73,859	4,41,750	5,20,800	5,39,760
Assam	...	...	...	...	60,367	63,397	90,520	1,01,152	1,26,628	1,32,829	1,42,725	1,65,361	1,71,822	1,99,562	1,97,699	2,11,491	2,12,287	2,36,892	2,69,906	2,57,123	2,63,852	2,67,525	2,64,070	2,63,220	2,72,010
Coorg	24,757	70,178	29,179	45,952	37,909	40,162	33,692	36,268	34,823	55,165	56,487	50,736	64,770	75,023	76,951	65,690	71,668	72,629	80,175	72,120	66,818	86,850	73,050	86,890	86,140
Ajmere	...	...	13,051	17,932	15,231	27,346	22,160	14,926	13,415	13,750	12,122	13,854	11,281	14,571	16,316	16,169	20,731	18,897	15,676	12,791	12,729	13,986	15,000	15,900	14,900
Forest Surveys (Imperial)	...	...	...	59,556	78,060	58,930	58,923	60,165	60,325	46,874	40,335	42,189	41,595	30,910	19,823	19,180	28,348	22,868	22,164	21,188	24,324	26,882	22,160	27,900	29,840
Forest School	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22,568	21,239	30,831	33,129	32,963	29,646	35,191	44,317	50,900	65,530	65,980
Andamans	...	1,651	1,895	...	...	...	1,307	1,096	...	7,177	2,160	2,205	1,816	12,161	22,760	37,035	25,769	62,679	57,295	91,975	1,20,652	1,79,909	2,31,210	2,44,550	1,22,780
Total	28,87,116	26,79,882	28,61,723	29,05,523	30,52,569	28,63,632	31,18,278	30,01,442	30,82,919	30,78,691	30,27,821	38,35,871	33,01,710	41,67,252	41,50,563	40,79,127	41,14,543	41,31,532	50,01,841	48,79,615	47,47,998	52,09,005	53,86,620	55,83,046	56,26,170
Madras	4,17,267	3,91,921	5,18,716	4,78,930	5,95,911	5,92,639	6,25,500	5,65,621	4,95,911	5,18,527	5,19,270	6,93,119	6,15,352	7,85,733	8,96,505	9,27,972	17,53,122	11,29,212	12,28,791	11,61,237	12,46,913	13,28,251	13,30,300	13,62,770	13,86,350
Bombay	6,39,759	5,97,331	7,25,031	7,21,591	8,26,675	7,96,181	8,23,979	8,77,716	10,01,923	10,76,969	11,67,317	11,69,181	12,78,770	15,61,172	17,78,723	18,39,151	19,52,910	19,44,005	16,93,962	17,50,691	18,69,857	19,31,157	19,01,970	20,71,910	20,67,920
Total (British India)	39,71,182	36,67,640	41,35,525	41,02,037	44,85,205	42,49,812	46,22,818	44,47,782	45,83,786	47,01,207	47,21,151	56,68,171	52,25,832	65,18,157	68,25,791	68,56,570	72,20,580	72,01,750	79,19,600	78,11,543	78,64,751	84,68,319	86,21,290	90,22,726	90,80,710
Berar	81,972	1,00,825	83,631	86,350	91,389	91,419	91,632	1,09,968	1,07,250	1,10,598	1,23,968	1,52,985	1,55,054	1,56,779	1,52,619	1,59,212	1,71,701	1,83,765	1,70,212	1,78,519	1,68,921	1,98,766	2,29,220	2,54,250	2,51,640
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	...	...	15,013	34,801	42,940	45,172	42,098	23,925	6,464	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...	...	15,481	17,685	11,962	16,911	13,261	15,739	17,835	17,752	15,991	17,962	29,450	30,497	55,620	63,720	40,910
Grand Total	40,53,154	37,68,465	42,02,156	41,88,387	45,76,594	43,41,231	47,13,450	45,57,750	45,91,036	48,11,805	48,60,600	57,73,841	53,92,848	67,06,860	70,25,510	70,71,551	73,55,508	73,45,365	81,29,781	80,12,518	80,63,125	86,94,182	89,06,230	93,10,700	93,72,290

* Includes pay of Inspector General of Forests, certain home charges, and undistributable and petty local items.

APPENDIX II—*concluded.*

SURPLUS.

Provinces.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92	1892-93.	1893-94.	1894-95.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial* .	−18,316	−51,196	−61,379	−77,951	−80,056	−46,771	−41,514	33,673	−17,240	−55,596	−46,101	−50,228	−56,536	−65,259	−69,732	−73,537	−82,113	−73,779	−62,182	−76,552	−29,011	−58,100	−1,02,030	−78,160	−78,970
Bengal . .	16,770	33,730	49,075	19,092	84,573	55,598	7,904	1,63,315	77,352	1,73,776	2,25,959	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,426	3,00,637	3,70,563	3,13,333	3,65,623	3,63,270	3,97,570	3,93,220
North-Western Provinces and Oudh . .	−3,85,816	69,629	7,61,419	7,81,883	3,02,056	5,27,377	2,89,309	4,74,182	3,16,778	3,23,372	2,62,651	1,19,882	1,71,378	5,69,493	5,52,218	4,86,976	5,53,976	4,16,705	6,18,258	7,51,603	7,18,684	7,73,303	7,24,000	7,46,840	7,21,910
Punjab . .	2,48,519	2,597	−2,37,371	1,59,963	1,75,894	3,52,920	73,096	1,63,653	−22,935	1,69,143	1,76,316	1,72,038	2,05,959	2,57,031	1,91,222	1,74,936	1,10,767	1,09,024	1,51,833	2,75,856	1,81,329	3,79,799	1,56,360	2,76,870	3,10,310
Central Provinces .	3,40,192	2,25,495	2,31,805	2,82,423	3,66,189	3,32,849	3,71,031	3,61,576	4,59,101	4,81,150	3,51,627	6,75,871	5,65,400	5,53,711	5,31,381	5,91,462	4,58,117	5,40,436	5,11,708	4,59,736	4,77,907	5,55,985	3,79,158	2,02,290	32,570
Burma (Lower)	4,17,273	3,93,183	4,80,816	5,93,317	4,11,255	9,63,361	5,15,854	7,44,851	4,18,160	4,26,760	3,91,015	10,81,590	12,71,911	12,91,451	4,58,749	8,72,907	9,22,837	11,86,263	13,77,361	13,01,872	15,91,197	15,32,563	22,20,120	21,47,710	18,95,970
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,05,886	1,75,723	7,91,799	15,32,270	13,11,982	9,53,441	16,31,880	1 7,74,890	16,22,820
Assam . .	...	...	...	...	5,552	−4,527	−8,952	33,173	35,751	31,506	26,272	693	67,782	11,883	−17,285	−14,838	−276	40,420	93,977	1,22,368	42,911	68,601	1,18,760	2,20,280	1,63,630
Coorg . .	27,397	22,283	51,916	61,332	20,016	37,292	42,265	61,737	17,191	46,621	31,370	10,563	73,252	12,795	36,252	23,696	25,203	54,369	56,003	20,333	69,143	96,037	1,07,599	65,900	66,910
Ajmere . .	...	...	−13,030	−17,628	−15,079	−26,936	−21,555	−11,921	−12,201	−11,859	−11,299	−9,389	−4,153	−6,376	−5,860	−6,772	−9,470	−4,601	−2,162	−1,169	2,516	5,813	−110	−1,280	−2,060
Forest Surveys (Imperial) .	...	...	...	59,556	−78,090	−58,909	−58,929	−60,165	−60,262	−46,810	−40,053	−42,189	−41,217	−30,901	−19,589	−18,978	−28,107	−32,823	−21,849	−20,953	−22,220	−26,625	−21,640	−27,660	−29,760
Forest School .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	−22,195	−23,966	−30,416	−32,352	−32,512	−28,409	−34,097	−42,559	−48,120	−63,510	−63,190
Andamans .	7,373	4,229	4,966	5,181	5,516	5,363	3,272	205	5,561	−5,740	25,574	46,101	69,913	12,091	−517	−13,091	6,101	41,383	43,720	67,220	28,274	92,429	1,29,280	1,97,240	−8,250
Total .	1,46 451	7,78,155	12,80,553	16,92,044	11,98,141	21,90,614	12,01,850	19,72,012	11,88,259	15,35,209	13,03,015	23,03,250	26,49,505	29,17,856	17,93,611	22,25,528	26,63,358	28,88,152	41,14,766	52,71,196	46,32,720	46,95,743	56,61,510	58,79,950	50,26,650
Madras . .	86,145	1,31,340	46,112	1,28,723	−81,510	85,831	−42,987	−15,314	1,10,874	77,611	2,17,610	2,03,189	2,61,090	1,66,971	2,70,411	2,60,678	93,789	2,45,703	2,91,212	3,96,890	5,48,495	3,63,962	2,46,820	5,81,410	5,07,680
Bombay . .	5,28,612	5,52,381	4,21,374	4,66,495	3,87,376	4,54,531	3,87,679	3,83,812	1,76,971	4,47,723	3,55,169	6,55,936	8,11,533	9,38,928	9,93,119	15,26,825	10,79,756	10,88,572	11,56,222	13,67,005	14,18,333	13,53,192	13,61,580	17,22,410	16,82,110
Total (British India) . .	7,61,241	15,14,879	17,48,371	22,87,272	15,03,977	27,30,979	15,46,542	23,40,511	14,76,104	20,60,567	18,82,715	31,65,575	37,22,238	40,23,755	30,60,171	40,13,331	38,36,913	42,22,432	55,62,200	70,37,591	65,99,548	64,19,897	72,72,910	81,83,770	72,18,440
Berar . .	95,357	51,719	1,72,932	1,76,906	1,69,285	1,41,282	1,58,420	1,69,268	1,81,354	1,86,994	1,37,588	80,526	1,36,900	1,51,139	1,44,536	1,36,009	1,54,552	2,22,682	2,37,755	2,63,992	3,18,183	3,12,819	2,01,790	2,28,550	2,21,760
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	...	...	−15,013	−33,870	−42,309	−41,821	−41,502	−23,955	−6,461	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	...	...	...	−2,040	931	−6,923	−12,159	−7,177	−837	−3,755	−3,690	−10,328	−4,065	−13,726	−9,883	−36,590	−43,000	−21,610
Grand Total .	8,56,598	15,66,598	19,21,306	24,64,178	16,73,262	28,72,262	17,04,962	25,09,779	16,57,458	22,57,561	25,17,663	32,47,135	38,52,275	41,47,992	31,63,660	41,30,791	39,42,894	44,99,922	57,63,680	72,91,051	69,01,010	67,22,828	74,38,110	83,72,320	74,15,590

* Includes pay of Inspector General of Forests, certain home charges, and undistributable and petty local items.

G. I. C. P. O.—No. 32 R. & A.—20-11-96.—225.—J. A.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1895-96.

ROYAL ASIATIC SOCIETY BOMBAY BRANCH

BY

B. RIBBENTROP, C.I.E.,
INSPECTOR-GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREA.

I.—Alterations in Area.

The alterations in the area of reserved forests are shown in the following table. There was a total increase of 2,211 square miles, as against 2,682 square miles during the preceding year. At the close of the year the area of reserved forests stood at 76,482 square miles, as compared with 74,271 square miles, the area on the 1st July 1895 :—

Province.	Area of Reserved Forests, in square miles.				Remarks.
	In 1894-95.	Added in 1895-96.	Excluded in 1895-96.	At the close of 1895-96.	
Bengal . . .	5,839	43	5	5,877	
North-Western Provinces and Oudh	3,765	12	11	(*a*)3,766	(*a*) Includes 85 square miles of *leased* forests.
Punjab . . .	1,677	10	7	(*b*) 1,680	(*b*) Includes 344 square miles of *leased* forests, and excludes 123 square miles managed by the Military and Civil authorities.
Central Provinces . .	19,542	(*c*) 104	353	19,293	
Burma (Lower) . .	7,071	315	8	(*d*) 7,378	(*c*) Includes 4 square miles *taungya* areas. (*d*) Includes 573 square miles *taungya* areas.
„ (Upper) . .	4,408	1,034	3	(*e*) 5,439	(*e*) Includes 137 square miles of *taungya* areas.
Assam . . .	3,716	11	42	3,685	
Coorg . . .	238	...	...	238	
Ajmere . . .	139	...	...	139	
Baluchistan . . .	175	...	...	175	
Andamans . . .	73	...	...	73	
Total .	46,643	1,529	429	47,743	
Berar	4,179	15	16	4,178	
Total Bengal Presidency	50,822	1,544	445	51,921	
„ Madras „ .	11,466	1,086	164	12,388	
„ Bombay „ .	11,983*	199	9	*12,173	* Includes *leased* forests in the Dangs, estimated at 679 square miles.
Grand Total .	74,271	2,829	618	76,482	

It will thus be seen that nearly the whole of the increase took place in Burma and in Madras. In the former province good progress was made, particularly in Upper Burma, in finally notifying reserves. In addition, much work was also done in the collection and examination of forest tracts prior to reservation, and large increases to the areas of reserves in Upper Burma may be expected within the next few years. In Madras, too, settlement work has been pushed on with energy, with the result that 856 square miles of new reserves were formed during the year.

The following table gives the total areas of all forest lands under the control of the Forest Department at the close of the year :—

Province. Name.	Area in square miles.	Forest area, in square miles. Reserved.	Protected.	Unclassed State.	Total.	Proportion of forests to whole area of Province.	Remarks.
						Per cent.	
Bengal	151,585	5,877	(a)3,437	4,034	13,348	8·80	(a) Exclusive of the areas in the districts of Chota Nagpur (except Singbhum and Hazaribagh) which are still unknown and cannot even be estimated.
North-Western Provinces and Oudh.	107,141	(b)3,766	(c)94	43	3,903	3·64	
Panjab	103,436	(d)1,680	(e)1,376	2,972	6,028	5·82	(b) Includes 85 square miles of *leased* forests.
Central Provinces	86,513	19,293	...	364	19,657	22·69	(c) Exclusive of 9,225 square miles of undemarcated lands managed by District Officers.
Burma (Lower)	87,831	(f)7,378	...	(g)	7,378	8·40	(d) Includes 344 square miles of *leased* forests, and excludes 123 square miles managed by the Military and Civil authorities.
„ (Upper)	81,026	(h)5,439	...	(g)	5,439	6·71	
Assam	45,379	3,685	...	11,688	15,373	3·87	(e) Exclusive of 921 square miles managed by the Civil authorities.
Coorg	1,582	238	654	...	892	56·33	(f) Includes 573 square miles of *taungya* areas.
Ajmere	2,711	139	...	(i)10	149	5·50	(g) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Baluchistan	...	175	...	...	175	...	
Andamans	2,000	73	...	1,881	1,954	97·70	
Total	669,283	47,743	5,561	20,992	74,296	(j)11·07	(h) Includes 137 square miles of *taungya* areas.
Berar	17,717	4,178	...	...	4,178	23·58	
Total Bengal Presidency	687,000	51 921	5,561	20,992	78,474	(j)11·39	(i) Village lands managed by the Forest Department, but not yet brought under the Ajmere Forest Regulation.
Madras	141,125	12,388	...	6,690	19,078	13·52	(j) Baluchistan left out of account.
Bombay	122,667	(k)12,173	2,786	...	14,959	12·27	(k) Includes the area of the *leased* forests in the Dangs, estimated at 679 square miles.
GRAND TOTAL	950,792	76,482	8,347	27,682	112,511	(j)11·82	

At the commencement of the year the total area under the management of the Forest Department stood at 112,952 square miles, and there has thus been a decrease of 441 square miles, which is mainly due to a large deduction from the area of unclassed forests in Assam rendered necessary by a revision of areas. There was an increase in protected forests of 1,257 square miles, which was chiefly due to the completion of the Kulu forest settlement, under

which an area of 1,090 square miles became protected forests. The details of changes in area in the various provinces are as follows :—

Bengal.—The area of reserved forests was increased by 38 square miles, the increase being mainly due to rectification of areas in the Jalpaiguri District; the actual increase was only about ¼ a square mile. An increase of 435 square miles is shown under protected forests, and this is due to the area of the protected forests in the Sonthal Parganas having been estimated and brought on the forms. No real increase, however, took place. The area of unclassed forests remained unchanged at 4,034 square miles.

North-Western Provinces and Oudh.—The areas administered by the Forest Department remained practically unchanged; there was an increase of 1 square mile to the area of reserved and a decrease of 1 square mile in that of unclassed forests, leaving the area the same as last year, *viz.*, 3,903 square miles.

Punjab.—The principal changes which occurred during the year were—

In Kulu an area of 1,090 square miles were made protected forests from the unclassed forests which had, however, for long been under the management of the Forest Department. The Dharmsala municipal forests, area 55,250 acres, were made over to the control of the Forest Department; 15,411 acres of unclassed forest in the Lahore Division were made over to the Civil Department and sold for cultivation. In Chenab, 5,598 acres of unclassed forest were made over for colonization. Other changes, due to action of rivers and rectification of areas, were of small importance, and at the close of the year the areas of the various classes of forests, as compared with the previous year were—

	Reserved.	Protected.	Unclassed.	Total.
1894-95 . .	1,677	285	3,995	5,957
1895-96 . .	1,680	1,376	2,972	6,028

Central Provinces.—The area of forest managed by the Department was reduced by 275 square miles, the area of all classes of forests standing at the close of the year at 19,657 square miles. On the other hand, an increase, to Class A. forests, or permanent reserves, of 1,223 square miles was effected. In the Northern Circle two important areas were disforested, the Charwa tract in Hoshangabad of 216 square miles and 80 square miles in the Bir and Samardeo tracts of Nimar. Other small areas, amounting to 13 square miles, were disforested, bringing the total area thus dealt with to 318 square miles. Very considerable progress was made in the examination of Class B.I. and B.II. forests, and the work of classifying these areas into land to be set aside for cultivation and land to be made into reserved forests is nearing completion. The area of the various classes of forests at the commencement and at the close of the year is shown in the following table :—

Class.	Area in square miles.					
	Southern Circle.		Northern Circle.		Total.	
	June 1895.	June 1896.	June 1895.	June 1896.	June 1895.	June 1896.
A.	5,417	6,252	3,887	4,274	9,304	10,526
B.I.	762	1,047	2,067	1,864	2,829	2,911
B.II.	3,310	2,323	4,099	3,528	7,409	5,856
Unclassed	369	348	21	16	390	364
	9,858	9,975	10,074	9,682	19,932	19,657

Burma.—A net increase of 1,338 square miles took place in the area of reserved forests, of which 118 square miles were transferred from *taungya* areas. In Lower Burma 199 square miles were added in the Tenasserim Circle, and 116 square miles in the Pegu Circle, bringing, with certain smaller changes due to revision of area and to disforestation, the area of reserved forests to 7,378 square miles, as against 7,071 square miles at the commencement of the year. In the reserves is included an area of 573 square miles, which is burdened with *taungya* rights.

In Upper Burma important additions, amounting to 1,031 square miles, were made to reserved forests. Of these, 292 square miles were in the Eastern Circle, and 722 square miles,

chiefly in the Upper and Lower Chindwin Divisions, in the Western Circle, the remaining 17 square miles being due to rectification of areas. The area burdened with the rights of *taungya*-cutters was reduced from 219 to 100 square miles by buying out the rights, this being the first instance of such procedure in India or Burma. At the close of the year, proposals for the settlement of some 2,000 square miles were under preparation or awaiting disposal.

The following statement shows the areas of the reserves in each Circle at the close of the year :—

Circle.	Area in square miles.			
	Reserved forests.	*Taungya* areas.	Total.	Proportion of reserved forest to area of Province.
Pegu	2,675	371	3,046	...
Tenasserim	4,130	202	4,332	...
Total Lower Burma (87,831 sq. miles)	6,805	573	7,378	8·40
Eastern	2,605	101	2,706	...
Western	2,697	36	2,733	...
Total Upper Burma (81,026 sq. miles)	5,302	137	5,439	6·71

Assam.—An area of 11 square miles was added to reserved forests, and 42 square miles were disforested in the interests of cultivation, chiefly in the Cachar District, the area of reserves thus falling from 3,716 to 3,685 square miles. The revision of the area of unclassed forests resulted in a decrease of 2,224 square miles; the area of unclassed forests ow stands at 11,688 square miles, this figure representing the unsettled area after deducting the area of roads and embankments, land always covered with water and land unculturable for any other reason.

Coorg.—The area of reserves remained unchanged at 238 square miles. Four hundred and fifty acres were sold and made over to the Revenue Department from the protected forests, bringing the area of these to 654 square miles.

In *Ajmere* and *Baluchistan* no change in area took place, the reserves remaining as before at 139 and 175 square miles respectively. In the *Andamans* the area of forest cleared by the settlement authorities amounted to 699 acres, and the area of unclassed forests was correspondingly reduced by this amount.

Berar.—In Berar the area of State forests now stands at 4,178 square miles, being one square mile less than last year. Several transfers of area were made between State forests A., B., and C. which, however, do not affect the total.

Madras.—There was an increase in the area of reserved forests of 858 square miles formed by transfer from reserved lands. The following statement shows the changes in the area which occurred during the year :—

Class.	Area, in square miles.				
	On 1st July 1893.	Added during 1893-94.	Excluded during 1893-94.	Increase or decrease.	On 1st July 1894.
Reserved forests	11,466	1,086	164	+922	12,388
Reserved lands	7,324	549	1,183	—634	6,690
Total	18,790	1,635	1,347	+288	19,078

There was thus a net increase of 288 square miles in the total area reserved under the Forest Act. The area of reserved forests was, however, increased by 922 square miles, of which 858 square miles are new reserves, the remainder being due to rectification of areas. The unclassed forests or reserved lands show a decrease of 634 square miles due to disforesta-

tion and to the formation of reserves therefrom. Reserved lands were newly constituted over an area of 515 square miles.

Bombay.—There was a net increase in the area of reserved forests of 190 square miles; this was partly due to the rectification of areas to which an increase of 22 square miles is due. New reserves were constituted as follows—Northern Circle, 2 square miles; in the Central Circle, 23 square miles; in the Southern Circle, 89 square miles, chiefly in Kanara, where 81 square miles of protected forests were formed into reserves; and in Sind 63 square miles. The total area of the forests of the different classes in the Presidency stood at the close of the year as follows:—

Reserved.	Protected.	Total.
12,173	2,786	14,959

II.—Forest Settlements.

Important settlement work was carried out during the year, more especially in the Punjab, in Upper and Lower Burma and in Madras, resulting in a net increase to the area of Reserves of 2,211 square miles and to the area of Protected forests of 1,257 square miles. In most provinces the work of selecting and settling the permanent Government forest estates is nearing completion. Only in Bengal, Assam, the Punjab, Upper Burma, and Madras do extensive areas remain still to be dealt with. In Upper Burma alone proposals for reserving areas, amounting to some 3,500 square miles, were under preparation or awaiting disposal at the close of the year, and a large increase in the area of Reserved forests may be shortly expected here. In Assam settlement work has made but little progress. Notifications formerly issued dealing with some 900 square miles were cancelled, and no fresh areas have been finally selected, although certain proposals for forming Reserves were under consideration at the close of the year.

An examination of Form No. 47, as submitted in the various provinces, shows that the figures entered in column 11, "areas undergoing settlement at the commencement of the year" do not correspond with the figures entered in Form No. 47 of the previous year. Taking Upper Burma as an example, Form No. 47 of 1894-95 shows 1,253 square miles undergoing settlement at the commencement of the year, 1,276 square miles were taken in hand during the year, and 610 square miles finally settled during the year. The area undergoing settlement at the close of the year was therefore 1,253+1,276 —610 = 1,919 square miles, less areas which may have been abandoned during the course of the settlement. But Form No. 47 for 1895-96 gives 1,609 square miles as "undergoing settlement at the commencement of the year;" and as no details are given in the Form as to areas which, during the course of settlement operations, have been abandoned and thrown out of Reserves, it is impossible to accurately follow the progress of settlement operations from year to year.

In other instances the Form appears incorrect, as for instance in the North-Western Provinces, where, in 1894-95, an area of 1,322 square miles is shown as undergoing settlement at the commencement of the year, 59 square miles were taken in hand, and nothing was finally settled. Yet in column 11 of the Form for 1895-96, only 193 square miles are entered, and this is not understood.

In future, therefore, it would be an advantage if the remarks column showed the areas which have been abandoned during settlement, so that the figures of the year may be reconciled with those given in the Form of the previous year, and that where they do not agree the reason may be understood.

The changes which took place in the area under the control of the Department are shown in the following table :—

Province.	Alteration in area, in square miles, during 1895-96.								Remarks.
	Reserved Forests.		Protected Forests.		Unclassed State Forests.		Total.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal	(a)43	(b) 5	435	89	...	...	478	94	(a) Forty-two square miles obtained by rectification of previous area figures.
North-Western Provinces and Oudh.	12	11	...	...	...	1	12	12	(b) Four and-a-half square miles due to rectification of previous area figures.
Punjab	(c)10	(d)7	(e)3,091	...	(f)164	(g)1,127	1,265	1,134	(c) Obtained by rectification of previous area figures.
Central Provinces	(h)104	353	...	...	...	26	104	379	(d) Four square miles due to rectification of previous area figures.
Burma (Lower)	(i)315	(j)8	...	...	...	...	315	8	(e) Two square miles obtained by rectification of previous area figures.
Burma (Upper)	(k)1,034	(l) 3	...	...	...	...	1,034	3	(f) Seventeen square miles obtained by rectification of previous area figures.
Assam	11	42	...	...	1,288	3,512	1,299	3,554	(g) Two and-a-half square miles due to rectification of previous area figures.
Coorg	...	...	...	1	...	...	...	1	(h) Eighty-four square miles obtained by rectification of previous area figures.
Ajmere	...	...	...	...	...	...	...	...	(i) Forty-nine square miles obtained by rectification of previous area figures.
Baluchistan	...	...	...	...	...	...	...	...	(j) Due to rectification of previous area figures.
Andamans	...	...	...	...	...	1	...	1	(k) Nineteen square miles obtained by rectification of previous area figures.
									(l) Two square miles due to rectification of previous area figures.
Net Total Increase or Decrease.	1,100	...	1,438	...	...	3,275	...	739	(m) Fifteen acres obtained by rectification of previous area figures.
									(n) Four acres due to rectification of previous area figures.
Berar	(m)15	(n)16	...	...	...	...	15	16	(o) Two hundred and twenty-seven square miles obtained by rectification of previous area figures.
Net Total Increase or Decrease, Bengal Presidency	1,099	...	1,438	...	...	3,275	...	740	(p) One hundred and fifty-six square miles due to rectification of previous area figures.
Madras	(o)1,036	(p)164	...	...	(q)549	(r)1,183	1,635	1,347	(q) Thirty-four square miles obtained by rectification of previous area figures.
Bombay	(s)199	(t) 9	...	(u)179	...	...	11	...	(r) Forty-eight square miles due to rectification of previous area figures.
									(s) Twenty-two square miles obtained by rectification of previous area figures.
									(t) Six square miles due to rectification of previous area figures.
Grand Net Total Increase or Decrease	2,211	...	1,257	...	...	3,909	...	441	(u) Fifty-eight square miles due to rectification of previous area figures.

The following shows the details of work done in the different provinces:—

Bengal.—During the year the area finally settled amounted to 379 acres only. An area, amounting to 1,039 square miles, was undergoing settlement at the close of the year, of which 5 square miles were taken in hand during the year, the remaining being pending from previous years. The areas under settlement are in the—

Darjeeling Division	. . . . .	. 44 square miles.	1,039 square miles.
Tista „	. . . . .	. 52 „	
Kurseong „	. . . . .	. 96 „	
Chittagong „	. . . . .	. 847 „	

With the exception of the 847 square miles in Chittagong, for which notifications under section 4 of the Forest Act have been issued, and 1 square mile in Kurseong, the above areas have been constituted Reserves under section 34 of the Act, and a further enquiry was ordered in the year 1890. The enquiry into rights in the areas concerned in the Darjeeling and Tista Divisions has been completed, but final orders have not issued. Owing to difficulties which are being experienced, it is probable that the settlement in Chittagong will not be completed for some time to come.

North-Western Provinces and Oudh.—Of the areas under settlement pending from the previous year, work was completed only in the small deodar forest of Chattarpal, area 315 acres, in the Central Circle, and over some 1,000 acres in the Dehra Dun Division of the School Circle. The abstract of admitted claims and sanctioned privileges resulting from an enquiry under section 35 of the Act in the reserved forests of the Kumaun Civil Division was published. In the Oudh Circle the records of concessions were completed for Kheri and Bahraich, and were sanctioned by Government. Similar records for the Gonda forests were under consideration at the close of the year.

The only important work remaining is in the Central Circle, where 150 square miles were undergoing settlement at the close of the year. There are also other areas in the Kumaun Civil Division which will probably shortly come under settlement.

Punjab.—The most important work of the year was the completion of the long-pending settlement of the Kulu forests, area 1,090 square miles. The only important settlements still pending are those of the Kangra and Shahpur-Kandi forests. It is hoped that this work will shortly be taken in hand, now that the Kulu settlement has been disposed of.

Central Provinces.—Substantial progress has been made in the classification of the forests, and an area of 1,223 square miles has been added to the Class A. or permanent reserves as the result of the examination of the B. Class areas. The selection of areas more suitable for cultivation than for inclusion in the permanent forest reserves was proceeded with, and the proposals were completed for Chandi, Seoni and Chindwara. Various small areas, amounting in all to nearly 28 square miles, were finally settled during the year; an area of 240 square miles was undergoing settlement at the close of the year; 348 square miles were disforested of which the important Charwa tract in Hoshangabad—area 216 square miles—formed a part.

Burma.—Important settlements were carried out, resulting in an increase to the area of reserved forests of 1,031 square miles in Upper Burma and of 307 square miles in Lower Burma. The areas of which the settlement was actually brought to a conclusion during the year were 868 square miles in Upper Burma and 315 square miles in Lower Burma. In the former, an expenditure of R3,551, and in the latter of R599, was incurred during the year on areas finally settled. The most important areas settled were the Môn and Pada reserves—area 150 square miles—in the Tenasserim Circle, the Kakayan and Mainnahla reserves—area 106 square miles—in the Pegu Circle, where further areas of some 270 square miles were settled but not notified during the year. The Thaw reserve in the Eastern Circle, area 172 square miles, was finally notified, and in the Western Circle, the Uya Reserve of 170 square miles, the Nanka-Taungwun reserve of 255 square miles and the Sidoktaya reserve of 130 square miles were under settlement at the close of the year.

At the close of the year the large area of 2,128 square miles in Upper Burma, and of 1,348 square miles in Lower Burma, were undergoing settlement, and proposals dealing with further valuable areas were under preparation or awaiting disposal, so that a large addition to the area of Reserved forests, particularly in Upper Burma, may shortly be expected.

Assam.—Eleven square miles were finally settled during the year, consisting chiefly of the Darranga reserve in the Kamrup Division. The notifications issued for 940 square miles, shown in the preceding year as undergoing settlement, were cancelled, the areas being found unsuitable. Further proposals for the reservation of new forests in North Cachar, and

in the place of the areas abandoned elsewhere, have been drawn up and are under consideration by the Local Government. A revision of the areas and the exclusion of unculturable lands resulted in a decrease in the area of unclassed forests of 2,224 square miles.

Coorg.—No settlement work was undertaken in Coorg.

Ajmere.—In Ajmere the work of revision of rights and concessions was undertaken by a special Forest Officer, but was not completed during the year.

Baluchistan.—In Baluchistan grazing rights were regulated, and a revised list of the cattle entitled to free grazing was prepared.

Andamans.—No areas were notified reserves, but the examination of the Dhani Khari forest, area 2 square miles, was completed and its reservation notified shortly after the close of the year.

Berar.—No forest settlements were in progress during the year.

Madras.—The outturn of settlement work was not so large as in former years, but nevertheless substantial progress has been made; 808 square miles of forest were finally settled, and there was an addition to the area of reserved forests of 922 square miles. The area of new reserves actually notified, 922 square miles during the year, was more than in the preceding year, although the real amount of settlement work done was less, this being due to the absence of three or four of the special Settlement Officers on leave or transfer. It is estimated that there is still an area of 4,747 square miles still requiring settlement. The progress made is shown by Circles in the following table:—

Circles.	Area, in square miles, of Reserved land.					Area, in square miles, brought under chapter II of the Madras Forest Act.				
	On 1st July 1895.	Added during 1895-96.	Total.	Excluded during the year, mainly by reason of constitution as Reserved forests.	Balance at the end of the year.	Area, notified under section 4, not constituted Reserved forests on 1st July 1895.	Added during 1895-96.	Total.	Constituted Reserved forest during 1895-96, or otherwise disposed of.	Balance notified under section 4, but not constituted Reserved forests.
Northern	2,596	297	2,893	476	2,424	1,931	(a) 39 +10	1,980	311 (b) 35 (c) 33	1,601
Central	2,184	220	2,404	628	1,776	1,769	(a) 274 +7	2,040	(b) 20 (c) 48 (a) 21	1,430
Southern	2,544	33	2,577	87	2,490	1,623	129	1,752	26 (a) 8 (b) 16	1,702
Total	7,324	550	7,874	1,184	6,690	5,313	469	5,772	1,089	4,733

(a) Rectification of area. (b) Initial notification cancelled. (c) Excluded at settlement.

Bombay.—A total increase of 190 square miles took place in the area of reserved forests, whilst protected forests decreased by 179 square miles, of which 58 square miles were caused by rectification of area figures. In the Northern Circle settlement work made considerable progress, and is approaching completion. Only 4 square miles were actually finally settled, but at the close of the year 612 square miles were undergoing settlement, which it is expected will shortly be completed. Form No. 47 has been incorrectly prepared, the entries in columns 10 and 11 being repeated in 12 and 13 which refer only to new work of the year. Nearly ₹18,000 were spent on settlement work during the year. In the Central Circle 23 square miles were finally settled, and 13 square miles were undergoing settlement at the close of the year. No important settlement work remains in the Circle. In the Southern Circle 302 square miles were finally settled. There remains some 1,000 square miles requiring settlement. The work is well in hand, and will shortly be finished. In Sindh, 63 square miles were settled during the year, some 25 square miles requiring settlement now alone remain. Form No. 47 has not been submitted for this Circle.

III.—Demarcation.

The Form given below shows the state of the boundaries of forests in the different provinces at the close of the year 1895-96.

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on Demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles	Miles.	Miles.	Miles.	R	R
Bengal	.....	71	2,017	186	2,274	24	1,702	4,000	1,340	8,876
North-Western Provinces and Oudh	Central Circle	2	312	2,075	2,389	...	614	3,003	247	780
	Oudh „	18	176	982	1,176	...	276	1,452	5,071	25
	School „	50	255	272	577	106	310	993	1,392	1,002
	Total	70	743	3,329	4,142	106	1,200	5,448	6,710	1,807
Punjab	.....	23	2,389	6,756	9,168	4,497	1,184	14,849	1,910	2,480
Central Provinces	Northern Circle	33	8,869	1,779	10,681	...	1,182	11,863	468	2,109
	Southern „	369	11,067	29	11,465	173	1,121	12,759	1,583	4,797
	Total	402	19,936	1,808	22,146	173	2,303	24,622	2,051	6,906
Lower Burma	Pegu Circle	89	439	1,717	2,245	91	693	3,029	1,079	2,742
	Tenasserim Circle	46	436	1,008	1,490	...	557	2,047	197	1,342
	Total	135	875	2,725	3,735	91	1,250	5,076	1,276	4,084
Upper Burma	Eastern Circle	391	213	885	1,489	224	213	1,926	4,343	1,140
	Western „	225	45	569	839	266	1,019	2,124	2,005	134
	Total	616	258	1,454	2,328	490	1,232	4,050	6,348	1,274
Assam	.....	20	1,103	4	1,127	34	1,367	2,528	845	2,595
Coorg	.....		230	24	254	...	11	265	...	601
Ajmere	.....	...	5½	195½	201	...	158	359	...	31
Andamans	.....	...	...	33	33	...	51	84	...	...
Baluchistan	.....	...	...	290	290	...	49	339	23	28
Berar	.....	70	772	388	1,230	43	182	1,455	1,230	1,101
Total Bengal Presidency	.....	1,407	28,328½	17,192½	46,928	5,458	10,689	63,075	21,733	29,783
Madras Presidency	Northern Circle	1,519	597	3,218	5,334	1,666	580	7,580	9,959	2,626
	Central „	1,680	3,912	7,710	13,282	1,552	135	14,969	14,045	2,916
	Southern „	469	193	6,272	6,954	549	579	8,082	3,982	2,036
	Total	3,668	4,702	17,200	25,570	3,767	1,294	30,631	27,986	7,578
Bombay „	Northern Circle	130½	143	1,840	2,113½	1,979½	476	4,569	1,878	658
	Central „	669	633	10,566	11,868	9,513	857	22,238	6,420	1,347
	Southern „	124	110	3,942	4,176	1,527	3	5,706	862	117
	Sindh „	276	1,518	6½	1,800½	116½	518½	2,435½	2,176	...
	Total	1,199½	2,404	16,354½	19,958	13,136	1,854½	34,948½	11,336	2,122
	Grand Total	6,274½	35,434½	50,747	92,456	22,361	13,837½	128,654½	61,055	39,483

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions, such as blocks, compartments and coupes.

The principal new demarcation work of the year has been in Madras and Bombay, where the settlement of forest areas constantly necessitates the demarcation of the newly-constituted reserves. In Madras no less than 3,668 miles and in Bombay 1,199 miles of new work were completed. Burma has a good record of new work completed, 135 miles in Lower Burma and 616 miles in Upper Burma having been demarcated during the year. In the Central Provinces 402 miles of new boundaries were demarcated, and for the future new work here will be mostly confined to the demarcation of areas which may be excised for cultivation. In the provinces of the Bengal Presidency, the demarcation of forest areas already settled may be said to be practically complete, with the exception of the Punjab where 4,497 miles of boundary remain undemarcated. This is nearly all in the Kangra Division. The settlement of the forests has only recently been completed, and the necessary steps to properly demarcate them will no doubt be taken.

The total length of new boundaries demarcated was 6,274 miles, and the amount remaining to be demarcated at the close of the year was 22,361 miles, of which 5,458 only are in the Bengal Presidency. The total length of boundaries of forests in the Bengal Presidency at the close of the year stood at 63,075 miles, as against 60,821 miles at the close of the previous year. Form No. 48 has been in most instances correctly prepared.

The details of work done by provinces are as follows :—

Bengal.—The total length of boundaries at the close of the year stood at 4,000 miles, as against 3,961 in the previous year, the increase being chiefly due to errors in previous calculations. Eight miles of new boundary lines were cleared. A disputed boundary in the Puri Division was settled and properly demarcated. A total expenditure of R10,216 was incurred, mostly on repairs.

North-Western Provinces and Oudh.—In the Central Circle the length of boundaries increased by 2 miles, owing to the formation of the new reserved forests of Chatarpal ; the boundaries are now in good order, with the exception of some village lands or "chaks" included in reserved forests, which need more clearly-defined boundaries. In the Oudh Circle the re-demarcation by monoliths is in progress, and 176 miles were completed during the year. This work has altogether cost R24,000, and it is estimated that R15,000 more will be required. Rupees 5,096 were spent during the year. In the School Circle 50 miles of new boundaries were demarcated chiefly in the Jaunsar Division. The only important demarcation work remaining in the North-Western Provinces and Oudh, in forests of which the settlement has been completed, is in the Jaunsar Division of the School Circle, where 104 miles of boundary still require demarcation.

Punjab.—But little new work was undertaken, only 23 miles of new demarcation being completed. Needful repairs were carried out in all divisions at a cost of R2,480. A number of new pillars to replace old damaged ones were built in Kangra at an expenditure of R1,139. In this Province there still remain 4,497 miles undemarcated, 3,800 of which are in the Kangra Division.

Central Provinces.—Demarcation work is now nearly complete. Out of a total length of 24,622 miles, only 173 miles in the Southern Circle remain to be demarcated. For the future the only new work required will be where areas are excised for cultivation ; 402 miles of new boundaries were demarcated at a cost of R2,051 or R5 a mile, whilst R6,906 were spent on the repair of 19,936 miles of existing boundary, *i.e.*, at the rate of 5½ annas per mile.

Burma.—A large amount of new work was done, 616 miles having been demarcated in Upper Burma and 135 miles in Lower Burma at a total cost of R7,624. Only 581 miles of boundaries remained undemarcated, which, considering that new reserves are being constantly formed, is very satisfactory. On repairs to existing boundaries R4,984 were spent in Lower and R1,274 in Upper Burma.

Assam.—Twenty miles of new boundary were demarcated, of which 12 were in the Kamrup Division and 6 in the Lakhimpur Division, in which there still remain 34 miles requiring demarcation. Existing boundaries were kept in order at a cost of R2,595.

Coorg.—There was no new work. Existing boundaries were kept in repairs at a cost of R601.

Ajmere.—No new work was undertaken; repairs cost R31. It has been found that the boundaries of the forests on the ground do not correspond with the declarations reserving the forests, and that the outer boundary in many instances is not clearly marked. Steps are being taken to rectify this unsatisfactory state of things.

Andamans.—Nothing was done.

Baluchistan.—Rupees 28 were spent on the repair of boundaries.

Berar.—Seventy miles of new boundary lines were demarcated at a cost of R1,230. Except in the Basim and Wun A. and B. class reserves, all forests are now demarcated with permanent boundary marks. The demarcation by permanent marks in Basim and Wun will probably not be completed for two years, but in the meantime the boundaries are sufficiently indicated by field boundary marks; R1,101 were spent on repairs.

Madras.—Demarcation work was pushed on with energy, no less than 2,189 miles of permanent demarcation having been completed during the year at a cost of R19,510 or R8-14-7 per mile, which is less than last year when similar work cost R9-0-10 per mile. One thousand four hundred and seventy-nine miles of preliminary demarcation was also done at a cost of R4,203. Of the permanent demarcation, 855 miles were done in the Northern Circle, and 1,117 miles in the Central Circle. The average cost per mile was lowest in the Northern Circle (R7-8-8) and highest in the Southern Circle (R13-15-8). The total expenditure incurred during the year on all kinds of demarcation, including the re-clearing of old lines, amounted to R35,564 as compared with R37,874, the amount spent in the previous year.

Bombay.—In the Northern Circle 130 miles of new boundary were demarcated at a cost of R1,878; R658 were spent on repairs. In all divisions much work remains to be done, and there are 1,979 miles of boundary requiring demarcation in the Circle. In the Central Circle 669 miles were demarcated at a cost of R6,420. A large amount of work remains, and Form No. 48 shows 9,513 miles not demarcated at the close of the year. In the Southern Circle 124 miles were demarcated. From Form No. 48 it would appear that there remain 1,525 miles undemarcated in the Kolaba Division, and there is still a good deal of work remaining to be done in the Northern and Southern Divisions, Kanara, of which, however, Form No. 48 does not give details. It is stated that the forests have all been demarcated by the substantial marks of the Revenue Survey, and that the forest demarcation by special marks is merely a convenience and not a necessity. In Sindh 276 miles of boundary were demarcated at a cost of R929, whilst 483 miles of existing boundaries were cleared and repaired with the assistance of cattle-breeders free of charge. One hundred and sixteen miles remained undemarcated at the close of the year.

IV.—Surveys.

The total outturn for the Survey year amounts to 5,677 square miles of topographical work on various scales. Of this area 3,217 square miles were surveyed by field parties of the Survey of India Department, that is 590 square miles in excess of the area surveyed in the previous year by the same agency. The Forest Survey Branch completed an area of 2,460* square miles, of which 621 square miles in the Chamba State were done for incorporation in the standard 1″ topographical maps of India. The outturn of the Forest Survey Branch is 577 square miles in excess of that surveyed in the previous year. The total area reported as surveyed during the previous year was 4,510 square miles, and for 1893-94 it was 4,275; hence the outturn for the year under review compares most favourably with the outturn of previous years, and it is satisfactory to note that it is the largest area yet reported for any previous year. The localities in which operations were in progress, as well as the outturn of the several branches of the work and the cost-rates, are given in the following tabulated statement:—

* Includes 127 square miles on the 16″ scale to complete the boundary records in the Central Provinces.

Presidency or Province.	Areas surveyed and cost-rate per square mile.																										Total Topographical Surveys.		Total Expenditure 1895-96.	
	Triangulation.				Traversing.				Detail Survey and preparation of maps on scales of																					
									1″=1 mile.				2″=1 mile.				4″=1 mile.				8″=1 mile.				16″=1 mile.							
	1895-96.		1894-95.		1895-96.		1894-95.		1895-96.		1894-95.		1895-96.		1894-95.		1895-96.		1894-95.		1895-96.		1894-95.		1895-96.		1894-95.		1895-96.	1894-95.	Forest Survey Branch.	Survey of India Department.
	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	Sq. m.	R	R
North-Western Provinces and Oudh *	392	13	247	9	51	9	507	7	...	...	...	...	...	...	...	...	421	20	473	26	...	...	...	...	...	...	...	...	421	473	(a) 15,049	...
Punjab *	1,165	8	761	8	...	...	...	...	631	12	282	24	...	...	...	...	92	37	14	60	...	...	...	...	...	...	...	...	713	296	(b) 15,669	...
Punjab (c)	116	20	229	14	...	...	...	...	...	...	...	...	...	...	...	...	413	62	229	68	...	...	...	...	...	...	...	...	(f) 200	229	...	35,956
Central Provinces *	804	11	833	9	(g) 374	7	143	12	...	...	...	...	...	...	...	...	1,025	42	712	49	...	...	...	...	127	(d) 42	146	49	1,152	858	(e) 64,077	...
Central Provinces	1,165	7	2,163	9	(f) 1,497	14	1,262	12	...	...	...	...	...	...	...	...	651	81	569	67	...	...	...	...	...	...	...	...	651	569	...	(i) 96,675
Burma *	560	7	...	...	(h) 464	19	51	26	...	...	...	...	...	...	...	...	174	92	271	89	...	...	...	...	...	...	...	...	174	271	29,792	...
Burma	638	21	440	30	(f) 746	59	500	94	...	...	...	...	111	85	36	179	339	158	339	153	...	...	...	...	...	...	...	...	450	375	...	1,16,297
Madras	1,815	12	1,918	10	(f) 820	12	850	10	...	...	...	...	...	...	...	...	964	54	971	56	...	...	...	...	...	...	...	...	964	971	...	75,900
Bombay	50	5	1,080	11	344	12	275	11	...	...	...	...	...	...	...	...	829	66	159	81	108	122	285	140	15	130	24	117	952	468	...	368
Total	7,160	...	7,771	...	4,296	...	3,578	...	631	...	282	...	111	...	36	...	4,903	...	3,737	...	108	...	285	...	142	...	170	...	5,627	4,510	1,24,787	4,02,166
																																5,26,953

* Surveys executed by the Forest Survey Branch, the topographical cost-rates of which include expenditure in classification of forests and soils; the other surveys are by the Survey of India Department.

(a) Includes R1,210 on account of publishing Tehri-Garhwal and Kheri maps.

(b) Includes R1,849 on account of drawing and publishing maps of Bahahr on 4″ and 1″ scales.

(c) Includes R4,451 on account of drawing and publishing maps of the Narsinghpur and Bhandara Divisions.

(d) Average cost of both 4″ and 16″ surveys.

(e) Excludes an area of 394 square miles triangulated but not yet computed.

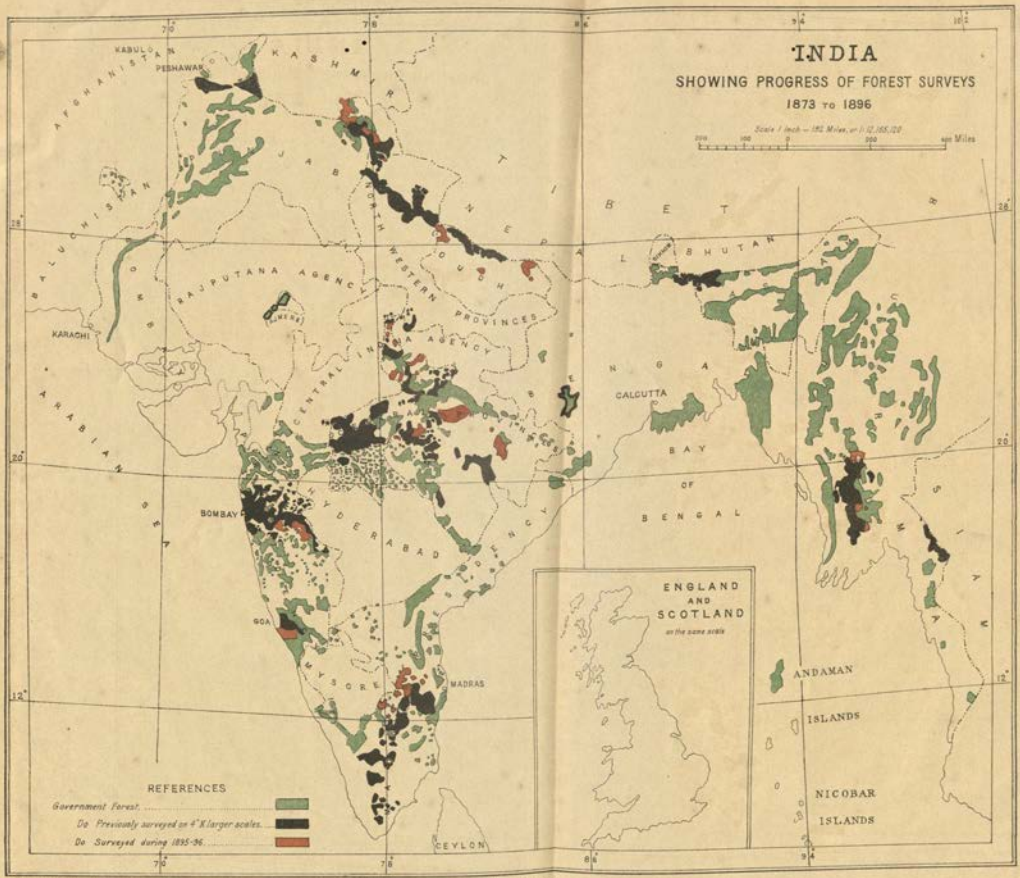
(f) Linear miles.

(g) Includes 312 linear miles of levelling and 47 linear miles of traversing at an average cost of R6 and R9, respectively.

(h) Includes 65 linear miles of traversing at a cost of R31.

(i) Includes R750 on instruction of soldier surveyors.

(j) Includes 71 square miles of forest in the Patiala and Sirmour States.



Reg. No. 468, Supdt. Forests.—Sept. 96—250.

Drawn & Litho. Govt Photozinco-Office, Poona 1897.

The foregoing statement shows that the sum of R1,24,787 was expended by the Forest Survey Branch for surveys executed in the several provinces in the Bengal Presidency, and that the Survey of India Department incurred an expenditure of R4,02,196, making a total aggregate expenditure under this head of R5,26,983 against an expenditure of R4,88,588 in the previous year.

In addition to the surveys done by professional agency, a considerable amount of work was done by the local staff of the Forest Department, notably in Upper Burma, where an area of 3,116 square miles of chain compass and other surveys are reported in Form No. 49 to have been done during the year, chiefly for purposes of furnishing maps to accompany Government Notifications of lands taken up as reserved forests as well as for other departmental purposes. These surveys, although they answer admirably for the purpose for which they are intended, are not considered strictly accurate, and cannot be utilized for incorporation in the general survey of the country.

The following statement shows the areas operated on by professional agency since 1873 and up to the close of the year under review, and the map of India attached illustrates the progress of the work :—

Survey year.	Bengal.		North-Western Provinces and Oudh.				Punjab.		Central Provinces.		Burma.		Assam.	Berar.		Mid. Rap.	Bombay.			By Forest Survey Branch.	By Survey of India Department.	Total.
	Scale.		Scale.				Scale.		Scale.		Scale.		Scale.	Scale.		Scale.	Scale.					
	4"	2"	12"	8"	4"	2"	4"	1"	16"	4"	4"	2"	4"	4"	2"	4"	16"	8"	4"			
1873-74 to 1894-95. *	115	...	3	...	3,900	205	1,380	2,319	696	3,645	749	7	613	936	1,231	...	...	...	...	15,979(a)	...	33,420
	532	215	...	215	494	...	807	...	...	3,483	2,612	1,046	...	...	...	4,154	192	2,993	1,691	...	17,541	
1895-96 *	...	...	...	...	421	...	92	621	127	1,028	174	...	...	...	...	...	...	...	...	2,460	...	5,677
	...	...	...	...	...	...	413	...	...	651	339	111	...	...	...	964	15	108	629	...	3,217	
Total	653	215	3	215	4,905	205	2,092	2,940	823	8,804	3,874	1,164	613	936	1,231	5,118	207	3,093	2,320	18,339	20,758	39,097
	867		5,328				5,032		9,627		5,038		613	2,167		5,118	4,930			39,097		

* Surveys executed by the Forest Survey Branch ; the other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor General.

(a) Includes an area of 2,940 square miles on the 1" scale surveyed for topographical purposes.

Excluding 2,940 square miles in the Punjab to complete the 1" topographical maps of the Chamba and Bashahr States, a total aggregate area of 36,157 square miles, on various scales, has been topographically surveyed for forest purposes.

Work done in the various provinces during the year was as follows :—

Bengal.—There is little to record under this head ; the only surveys undertaken were those done departmentally, comprising boundary and coupe surveys and surveys of road-traces, which were done at a total cost of R125. There still remains to be brought under survey an area of 1,129 square miles of Reserved and 967 square miles of Protected forests, and the Government of India call attention to the desirability of preparing a statement of the comparative degree of urgency with which each survey is required in connection with working-plans, as this statement will materially facilitate the preparation of their programme for forest surveys.

North-Western Provinces and Oudh.—The chief operations were those conducted by the Forest Survey Branch in Lalitpur in the Central Circle, and in the Gonda, Bahraich, and Gorakhpur Divisions in Oudh. In Lalitpur an area of 23 square miles of demarcated forest was topographically surveyed, which brought the forest survey in this Division to a close. The final cost-rates for the entire area operated on are R11·5 per square mile for triangulation and R53·7 for 4" topographical survey. In Oudh 398 square miles of Reserved forests were topographically surveyed at a cost of R18 per square mile. Forest survey work in these provinces has now been practically completed. In addition to the above, some minor surveys

were carried out by local agency, the most important of which are 8 square miles in the Ganges Division said to have been operated over by ordinary district surveys, and in the Jaunsar Division, 82 chak boundaries, enclosing an area of 3·4 square miles, as well as an aggregate length of 150 linear miles of main boundary lines surveyed and mapped by a local surveyor.

Punjab.—In Kangra, Kulu, Patiala, and Sirmur No. 18 Party of the Survey of India Department surveyed 73 forest blocks on the 4″ scale, with an aggregate area of 200 square miles and at an approximate cost of Rl00 per square mile. In the Chamba State the Forest Survey Branch topographically surveyed a total outturn of 713 square miles, of which 92 square miles were Government leased forests and were surveyed on the 4″ scale at a cost of R37 per square mile and, for the purpose of completing the topographical survey of the country, 621 square miles were surveyed on the 1″ scale at a cost of R12 per square mile. The total aggregate area of demarcated forests surveyed by the double agency was therefore 224 square miles. These figures are for the Survey year, and consequently do not agree with the figures in Form No. 49, which are evidently for the Forest year. Some minor surveys in the Chamba and Multan Divisions were done by local officials.

Central Provinces.—In continuation of the previous season's operations the Forest Survey Branch as well as No. 14 Party of the Survey of India Department were employed on the survey of the Reserved forests. The field operations of the Forest Survey Branch were located in the Districts of Nagpur, Seoni, Chindwara, Saugor, Raipur, and Balaghat, and a small area in the Jubbalpur District, due to revision of forest boundary, was also done. The field operations of No. 14 Party were confined to the Districts of Damoh and Betul, and some preliminary work was done in Bilaspur. The outturn of topographical work by the Forest Survey Branch on the 4″ scale was 1,152 square miles at a cost-rate of R42 per square mile, and No. 14 Party turned out an area of 651 square miles, on a similar scale, at R81 per square mile; the total outturn, therefore, by the double agency, was 1,803 square miles against 1,427 square miles in the previous year. The Chief Commissioner remarks that, in view of the depressed condition of forest finances, it has been decided, after the current year, to abandon any further surveys by the more expensive Imperial Survey, the unsurveyed areas being gradually taken up by the cheaper agency of the Forest Survey Branch, and by this means it is estimated that a saving will result of about 3 lakhs of rupees on the balance of the work. There still remains to be brought under survey 7,893 square miles of reserved forests, and at the pace the Forest Survey Branch is at present getting over the ground, this area should be completed in about 7 years.

Burma.—Forest surveys were carried on in the Toungoo, Pegu and Amherst Districts of Lower Burma and in the Pyinmana District of Upper Burma. In the Toungoo and Pegu Districts No. 20 Party of the Survey of India Department completed the topography of 339 square miles of Reserved forests on the 4″ scale at a cost of R158 per square mile, and 111 square miles of Unclassed forests were surveyed on the 2″ scale; it also completed 638 square miles of triangulation and covered an area of 746 linear miles with traversing. An area of 174 square miles of Reserved forests on the 4″ scale at a cost of R92 per square mile was completed by the Forest Survey Branch in the Pyinmana District, as well as 65 miles of traverse survey; and this Branch also extended its triangulation over an area of 560 square miles and covered an area of 399 square miles with traversing in the Attaran and Haungtharaw valleys of the Amherst District. Local officers in the Eastern Circle did traverse surveys to the extent of 678 square miles, and also 625 miles of linear and boundary surveys; and sketch maps have been prepared of all forests under settlement; and in the Western Circle 1,650 square miles of traverse survey were mapped with interior details, and 792 miles of linear surveys were also executed.

Assam.—No surveys were carried out by professional agency, but the survey of 5 miles of compartment boundaries in the rubber plantation of the Darrang Division was undertaken departmentally, as well as 248 miles of outer boundaries in the Nowgong Division and 6 miles in the Lakhimpur Division on account of Railway concessions.

The Forest Survey Branch supplied a 4″ map, for local use, of the Bhutan boundary from pillar No. 50 to No. 79 touching on the Goalpara boundary.

There still remains an area of 2,339 square miles of Reserved forests to be brought under survey.

Coorg.—In this Division, as well as for the *Andamans* and *Baluchistan*, there is nothing to record under this head.

Ajmere.—Nothing in the way of surveys was done, but a proper survey of these forests is doubtless required. The present forest maps show only the outer boundary lines without any

topographical details whatever, and are said to be of little or no use. In order to carry out the prescriptions of forest working-plans good topographical maps are undoubtedly necessary.

Berar.—No surveys have been undertaken, but the compilation, locally, of 19 taluk maps on the 1″ scale has been completed. Some of these maps have already been passed through the press at Dehra Dun, and as they contain various information they will be of considerable use not only to Forest Officers but also to District Officers of other Departments.

Madras.—Survey operations were conducted by No. 19 Survey of India Party in continuation of the previous season's work in Salem, North Arcot, and Kurnool; the operations in the latter district were preliminary work of triangulation and traversing only. The total area topographically surveyed on the 4″ scale was 964 square miles, against an area of 971 square miles in the previous year, and the cost-rate is given at R54 per square mile; these results compare favourably with those of previous years. Up to the close of the year a total aggregate area of 5,118 square miles have been topographically surveyed, and now that a second Survey Party has been deputed to work in the Madras Presidency, an annual outturn of nearly 2,000 square miles may be expected, and this should bring the completion of forest surveys to within a measurable distance.

Bombay.—In continuation of the previous season's operations No. 17 Party of the Survey of India Department was employed in all three Circles surveying forest reserves in the Districts of Thana, Poona and North Kanara; some triangulation was also done in Ahmednagar. The total area topographically surveyed was 952 square miles, as compared with 468 square miles in the previous year; the excess outturn of work in square miles is attributed to a large increase of native surveyors to the establishment, and it is also due to the greater part of the area having been surveyed on the smaller scale of 4″ = 1 mile.

The following table shows the outturn of topographical work on the several scales and cost-rates in each of the forest Circles :—

Forest Circle.	4-INCH SCALE.		8-INCH SCALE.		16-INCH SCALE.	
	Area.	Cost-rate.	Area.	Cost-rate.	Area.	Cost-rate.
	Sq. Miles.	R	Sq. Miles.	R	Sq. Miles.	R
Northern	...	...	42	168	...	...
Central	219	62	66	94	16	130
Southern	610	69	...	...	...	...
TOTAL . .	829	...	108	...	15	...
	952					

The area surveyed on the 4″ scale is much larger than that reported in the previous year, and the cost-rate is less; these satisfactory results are apparently ascribable to the more extensive employment of native agency. The areas surveyed on the larger scale of 8 and 16 inches to the mile are less than the previous year, and the cost-rate of the 16″ work (R130 per square mile) is much in excess of similar work done last year: this is said to be attributed to the surveyors employed on the 16″ work being less skilled than before, while the blocks surveyed were more scattered. It is remarked by the Survey Commissioner that the Superintendent in charge of the Survey Party does not appear to have extended his tour to the Central Circle, and it would seem desirable that the work of surveying babul reserves, done entirely under native supervision, should at least have been inspected by him.

In Sindh a small staff of local surveyors were employed in defining the limits on the ground of the areas set apart for exploitation in 1895-96 and 1896-97. Some of the riverain forests, owing to the action of the river, have so altered their shape as to render the maps prepared departmentally between 1883 and 1891 useless, and such areas, it is said, will have to be re-surveyed by the working-plans staff. The topographical sheets of the Indus Riverain Survey include most of the riparian forest tracts on both banks of the river, and with the aid of these sheets the preparation of the new maps should be comparatively easy.

V.—Working-plans.

The following three statements show, for the provinces in the Bengal Presidency, (A) the area brought under the control of sanctioned working-plans up to the close of the year, (B) the progress made in the preparation of working-plans during the year, and (C) a comparison of the work done with that still remaining.

(A).

Areas brought under the control of sanctioned Working-Plans, up to 30th June 1896, in the provinces of the Bengal Presidency.

Province.	Forest Area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6) Sq. Miles.	(7) Per cent.
Bengal	5,877	3,437	4,034	13,348	(a)4,309	32
North-Western Provinces and Oudh	3,766	94	43	3,903	(b)2,290	59
Punjab	1,680	1,376	2,972	6,028	(c)552	9
Central Provinces	19,293	...	364	19,657	794	4
Burma (Lower)	7,378	...	...	7,378	(d)1,355	18
Burma (Upper)	5,439	...	...	5,439	...	...
Assam	3,685	...	11,688	15,373	533	3
Coorg	238	654	...	892	116	13
Ajmere	139	...	10	149	(e)	...
Baluchistan	175	...	...	175	...	...
Andamans	73	...	1,881	1,954	...	...
Berar	4,178	...	...	4,178	721	17
Total	51,921	5,561	20,992	78,474	10,670	14

N.B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement on page 2.

(a) In 1894-95, this was shewn as 4,378 square miles; it has now been reduced to 4,309, as 69 square miles were transferred to the Civil Department for cultivation during 1895-96.

(b) Includes 2 square miles added during 1895-96 owing to rectification; and excludes 39 square miles for the Kanjaria plan (sanctioned during the year) which forms a part of the general working plan for the Kheri Trans-Sarda forests, the area of which has already been accounted for.

(c) Excludes 7 square miles (Dalhousie plan) of old working-plans now revised.

(d) Includes 4 square miles owing to the inclusion of the Myolé reserve, area 4 square miles, in the Taungnyo working-plan.

(e) The Ajmere plan, comprising 139 square miles, was shewn here in 1894-95 as sanctioned. It was subsequently cancelled and a revised one was prepared and sanctioned during 1896-97, in which year it will be accounted for.

(B).

Progress made in Working-Plans in the provinces of the Bengal Presidency during 1895-96.

1	2		3			
Province.	Preliminary proposals submitted to the Inspector General of Forests for Working-Plans.		Completed Plans submitted for opinion and remarks of Inspector General of Forests.		Plans finally sanctioned by Local Governments on recommendations of Inspector General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
		Square miles.		Square miles.		Square miles.
North-Western Provinces and Oudh	1	80 (b)	2	466 (a)	4	78 (a)
Punjab	2	580 (c)	...	...	2	20 (d)
Central Provinces (Southern Circle)	13	2,031 (e)	9	1,204 (f)	6	363
Burma (Upper)	1	36	...	...	...	...
Burma (Lower)	4	42	...	...	2	332 (g)
Berar	...	...	...	...	1	702
Total	21	2,769	11	1,670	15	1,495

(a) Includes 39 square miles (Kanjaria plan) already dealt with in the Kheri Trans-Sarda working-plan.

(b) Includes 60 square miles of old working-plan areas now being revised.

(c) The total area to be dealt with in Kulu working-plan was not stated in the preliminary report. The area (536 square miles) has been taken from the Kulu settlement report and is approximate. Form 50 for 1895-96 shews that 549 square miles have been taken in hand in the Kulu Division.

(d) Includes 7 square miles of old areas now revised.

(e) Excludes 135 square miles of the Gangayanla plan included in last year's table, but for which revised preliminary proposals were submitted in 1895-96.

(f) Excludes 183 square miles of the Arvi working-plan already shown last year, but for which a revised working-plan was received during 1895-96.

(g) Excludes 4 square miles of the Myolé reserve which was included in the Taungnyo working-plan during the year.

(C).

Comparative statement of progress made in Working-Plans during 1895-96.

Provinces.	Areas for which Working-Plans have been completed and sanctioned.		Areas for which Working-Plans are being compiled.		Areas for which Working-Plans have still to be taken in hand.	Total forest area as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	
Bengal	(a)4,309	...	408	...	8,631	13,348	(a) The former area was 4,178 square miles; but 69 square miles have been transferred to the Civil Department for cultivation during the year.
North-Western Provinces and Oudh. — Central Circle	901	3	(b)574	(d)14	347	1,839	(b) Garhwal plan, 427 square miles, plus 147 square miles on account of new areas in Ganges Plan. The areas of the old Ganges Plans (Palauk-Kohtri, 113 square miles and 141 square miles, Ganges Working-Circle) are already shown in column 2.
Oudh „	921	(c)36	150	(c)	136	1,243	(c) Excludes 39 square miles on account of the Kanjaria Working-Plan sanctioned during the year, as this area forms part of the general plan for Kheri Tarai-Sarda forests included in column 2.
School „	(f)429	...	296	...	96	821	(d) Excluding 63 square miles of old working-plans now being revised and already included in column 2.
Punjab	539	(g)13	1,445	396	3,635	6,028	(e) A new working-plan is being prepared for the Hiranpur working-circle which forms part of the general Bhira range plan, area 73 square miles already included in column 2.
Central Provinces — Northern Circle	...	...	1,004	5,304	3,374	9,682	(f) In 1894-95 this was shewn as 427. It has now been increased by 2 square miles owing to rectification of area.
Southern „	431	363	4,618	898	(h)3,765	9,975	(g) Excluding 7 square miles (Dalhousie plan), of old areas now revised, but already accounted for in column 2.
Burma (Lower) — Pegu Circle	(e)1,023	...	...	...	2,023	3,046	(h) It is reported that out of this area working-plans are not required for 2,490 square miles.
Tenasserim Circle	...	332	53	118	3,829	4,332	* These are reserved areas only and exclude 9,200 and 13,582 square miles, respectively, of forests which have been afforded protection under the regulations as a preliminary to being reserved.
Burma (Upper) — Eastern Circle	...	...	35	...	*2,671	*2,706	(i) Includes 11,643 square miles of unclassed forests for which working-plans are not required at present.
Western „	...	...	...	...	*2,733	*2,733	(j) The Ajmere plan was sanctioned in 1894-95 and accounted for in the working-plan statement for that year. The plan was subsequently cancelled and a revised one prepared and sanctioned during 1896-97, in which year it will be accounted for.
Assam	533	...	...	...	(i)14,840	15,373	(k) The Conservator states that these figures represent area of forests as scaled and therefore will not compare with figures in Form No. 46.
Berar	19	702	4	...	3,453	4,178	(l) The area shown in 1894-95 was 502 square miles. The difference is owing to 14 square miles of pasture reserve having been excluded.
Coorg	116	...	28	44	704	892	(m) Excludes 26 square miles of pasture reserves which are not to be organized.
Baluchistan	...	...	...	...	175	175	(o) Includes 4 square miles on account of the Myoló reserve being included in the Taungnyo Working-Plan.
Andamans	...	...	...	...	1,954	1,954	
Ajmere	(j)	...	(j)139	...	10	149	
Total Bengal Presidency	9,221	1,449	8,654	6,774	52,376	78,474	
Madras Presidency† — Northern Circle	31	21	91	628	5,788	6,559	
Central „	10	68	4	54	6,746	6,882	
Southern „	46	7	13	18	5,553	5,637	
TOTAL	87	96	108	700	18,087	19,078	
Bombay Presidency† — Northern Circle	391	174	63	...	621	(k)1,249	
Southern „	(l)495	187	32	50	(m)1,697	(m)2,470	
Central „	776	112	78	1,474	3,910	6,360	
Sindh „	...	...	...	...	1,065	1,065	

† *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

From the above it will be seen that of the total area under the control of the Forest Department, which at the close of the year stood at 78,474 square miles, working-plans were actually in force over an area of 10,670 square miles, or 14 per cent. of the whole. Moreover, for a further area of more than 15,000 square miles, working-plans were under preparation, so that it is evident that the next few years will largely increase the area of forests worked under carefully considered plans of working. During the year under review 15 working-plans, dealing with an area of 1,495 square miles, were sanctioned by Local Governments, raising the total number of plans in force from 50 to 64, whilst 11 plans, dealing with 1,670 square miles, were submitted to the Inspector-General of Forests for his professional opinion.

The North-Western Provinces and Oudh continue to hold the foremost place in this branch of administration, showing an area of 59 per cent. of the total brought under sanctioned working, whilst important plans for some 1,000 square miles were either completed or nearing completion at the close of the year. Excellent progress has also been made in the Southern Circle of the Central Provinces. In Madras and Bombay the control of working-plans does not lie with the Government of India, and it is not known how far the plans referred to in the reports and forms have been sanctioned by the Government. But it would appear that in Madras better progress was made than in the previous year, and that in Bombay a good deal of work was done in all three Circles. The high cost of completed plans in the Kanara Division of the Southern Circle—R545 to R649 per square mile—is remarkable. In Sindh it has been realized that the forests have in many instances been overworked, and the long delayed formation of a working-plan division is a most satisfactory step.

No important deviation from the provisions of existing plans calls for notice during the year. Such as occurred were owing almost entirely to causes beyond control such as, for instance, in the case of the Goalpara plan in Assam, where an insignificant demand prevents the disposal of the annual yield.

In last year's review attention was called to Form No. 50 showing the progress made in working-plans and the incorrect manner in which it had been drawn up. It was pointed out that columns 2 and 3 were intended to show only such plans as had been completed and formally sanctioned by the Local Government in accordance with the provisions of the Forest Code, and that such plans as, although completed, had not so been formally sanctioned should find a place in columns 4 and 5. The Forms for the year 1895-96 have, however, in most instances been again prepared in a misleading manner, and steps are now being taken to ensure the correct preparation of this Form in future.

The work done in the different provinces is summarized below.

Bengal.—During the year a plan for the Tista valley (12 square miles) and another for the forests of the Tista Forest Division (213 square miles) were completed but not finally sanctioned. They should consequently have been shown in columns 4 and 5 of Form 50, and not in columns 2 and 3. No other plans were completed, but the Plan for Jalpaiguri forest was nearly finished at the close of the year. The area of reserved forests for which working-plans have still to be taken in hand stood at 3,339 square miles, of which, however, 1,518 square miles in Chittagong are not in immediate need of organised plans of working.

North-Western Provinces and Oudh.—In the Central Circle working-plans were completed for the Garhwal and Ganges Divisions, area 837 square miles, and were sanctioned by the Local Government after the close of the year. The revision of the Naini Tal plan was taken in hand. In the Oudh Circle two new plans were sanctioned, that for the Kanjaria Range of the Kheri Division and that for the Chakia-Charda Range of the Bahraich Division,

together covering an area of 75 square miles. In the School Circle a working-plan for the Saharunpur Division, area 295 square miles, was completed, and a revised plan for the *sissu* forests in Dehra Dun was sanctioned.

The Government of India, in their review on forest administration in these provinces remarked—

"Of the total forest area in the North-Western Provinces and Oudh—3,903 square miles—working-plans are now in force over 3,198 square miles, those for 1,208 square miles having been completed during the year. There still remain 588 square miles without regular working-plans. Of this area 308 square miles are in the Bundelkhand Division of the Central Circle, 136 square miles in the Gonda Division of the Oudh Circle, and 96 square miles in the Jaunsar Division of the School Circle. The Government of India view with special satisfaction the progress which has been made in the North-Western Provinces and Oudh in this important branch of administration, and hope that working-plans will shortly be in force for all the forests of the Province."

Punjab.—A working-plan dealing with 13 square miles of the Kotkhai-Kotguru forest in the Simla Hill tracts was completed and sanctioned. Working-plans were, at the close of the year, under preparation for an area of 1,841 square miles. For the Kaghan plan enumeration work was finished, and it remained only to check countings and descriptions of compartments. In the Dungagali Range enumeration work was commenced. The Kalachitta and Upper Ravi working-plans were completed but not sanctioned during the year. A revised plan for the Dalhousie Range was sanctioned. The work of enumeration and collection of data for the Kulu working-plan was nearly completed. A plan for the Simla catchment area was completed, and the plan for the Changa Manga plantation was revised, and a working-plan for the Simla Municipal forests was commenced.

Central Provinces.—In the Southern Circle very substantial progress was made, and six plans dealing with an area of 363 square miles were completed and sanctioned during the year. Further plans, to cover an area of 5,416 square miles, were under preparation at the close of the year; 3,765 square miles remain for which plans have still to be taken in hand.

In the Northern Circle Form No. 50 has again been prepared in a misleading manner, inasmuch as it shows an area of 5,508 squares miles for which plans have been completed. As a matter of fact, no plans had at the close of the year 1895-96 been approved by the Inspector-General of Forests and sanctioned by the Local Government in accordance with the order laid down in section 88 of the Code. At the same time a larger amount of work has been done, and although the original plans have been judged to be unsuitable, they will greatly facilitate the preparation of the revised plans which are now being drawn up.

Burma.—In Lower Burma plans covering 332 square miles were sanctioned, and plans dealing with a further area of 171 square miles in the Toungoo Division were either completed or under preparation. The inclusion of the Myolé reserve (area 4 square miles) in the Taungnyo working-plan was sanctioned during the year. In Upper Burma no plans were sanctioned. A working-plan for the Mohnyin reserve was under compilation. A considerable amount of preliminary work was done. The Government of India in their review on the forest administration of Burma for 1895-96, remarked—

"The progress made in the preparation of working-plans and in the collection of data for future plans has been steady and satisfactory. The valuation surveys made in Upper Burma during the year extended to 9,200 acres. The approaching termination of the leases in Upper Burma renders the preparation of working-plans of great importance, and the Government of India are glad to observe that arrangements have been made to commence work in the Pyinmana forests. In the opinion of the Governor General in Council the early preparation of working-plans is of very much greater importance in the upper parts of the province than in Lower Burma, and he would suggest that all the available resources of the province in this direction should be concentrated on the leased forest areas."

Assam.—Of the 3,685 square miles of reserved forests, only 533 square miles are under a systematized plan of working, and under existing conditions it has not been found possible to work up to the prescriptions of the plan. Out of 19,511 trees of which the Goalpara working-plan permitted the felling during the past three years, it has been found possible to dispose of only 3,504. No new work was carried out.

Coorg.—No new plans were sanctioned during the year, but proposals for an area of 72 square miles were under consideration, and satisfactory progress was made in the collection of data for the new plans. No progress was made in the preparation of a plan for the sandal-wood areas.

Ajmere.—The working-plan which was sanctioned in 1894-95 was found to be unsuitable. The work of revising it was taken up but not completed during the year.

Baluchistan and Andamans.—There was no work under this head in these two provinces.

Berar.—During the year a plan for the Bairagarh and Gugumal forests, covering an area of 702 square miles, completed during the previous year, was sanctioned, and a plan for

the babul areas of the Akola Division, 4 square miles, was under preparation. A great deal of good work was done in the preparation of simple provisional plans-of-operations for the remaining forests.

Madras.—During the year plans dealing with an area of 96 square miles were completed, whilst plans for a further area of 808 square miles were under compilation. The fact that settlement operations are still in progress seriously impedes the preparation of working-plans, but the work done was much more satisfactory than in the previous year.

Bombay.—In the Northern Circle working-plans were completed for an area of 174 square miles, and a further area of 63 square miles was being dealt with at the close of the year. Good progress was made in the marking out of the annual coupes on the ground, but much remains to be done in the Murbad, Shahapur, Dáhánu, and Umbargaon Ranges, where settlement work is incomplete.

In the Central Circle Form No. 50 shows that plans for 112 square miles were completed, and that plans for 1,552 square miles were under preparation at the close of the year. There remains an area of 3,899 square miles of reserved forests for which plans have still to be taken in hand. Considerable progress was made in marking out the working-plan coupes on the ground, and provisional working-plans for several forests in the East Khandesh, the Nasik, and Ahmednagar Divisions were prepared.

In the Southern Circle two working-plans parties were at work in the Central Division of Kánara. It appears from Form No. 50 that plans were already in force for 495 square miles and that plans for 187 square miles were completed during the year, *i.e.*, that for 682 square miles plans had been completed at the close of the year. This does not agree with the report which shows that working-plans have been submitted for 395,119 acres = 617 square miles. Complete data for working-plans were collected for an area of 37,849 acres, at a total cost of R38,930, an average of a little more than Re. 1 per acre.

In Sindh no working-plans were framed, but the first steps have been taken in this direction by the formation of a Working-Plans Division and by a commencement being made towards the collection of data. The fact that the forests have been overworked in the past in many instances renders the preparation of systematic schemes of working in Sindh of special importance.

VI.—Communications and Buildings.

On the construction and up-keep of communications a total expenditure of R1,43,800 was incurred, of which R51,100 were spent on new roads. Only in Bengal, the North-Western Provinces and Oudh, and in Madras were important new road-works undertaken, expenditure in the remaining provinces being but small. Rupees 92,700 were spent on repairs to existing roads, the heaviest expenditure being, as usual, in the North-Western Provinces and Oudh (R43,000), where extensive annual repairs to the roads are required, without which produce cannot be brought out of the forests. The construction of tramways for the carriage of produce from the forests to the markets has not been developed to any great extent, there being at present only some 32 miles of such lines, of which only 28 miles have been laid. Moreover, where such works have been constructed, they have not always proved commercially successful as compared with the ordinary means of transport obtainable locally. Thus, in Madras, the Anamalai tramway in the South Coimbatore District, which has been kept up since 1889-90, is calculated to have resulted in a net loss to Government of R22,000. The cost of carriage by the tramway is R1-6-1 per ton mile, whilst by carts it is estimated to be R1-0-8 per ton mile. The capital on which depreciation and interest is yearly deducted would, however, seem to include 7 miles of tramway, of which 4 miles only are at present laid, and it is probable that when the lead is longer or the outturn larger the tramway will show a profit. Similarly, in the case of the Cuddapah tramway, the working of which still shows a slight loss, out of 3 miles of line purchased only 1½ miles seem to have been laid.

The Casuarina Plantation Range tramway in Nellore has, on the other hand, proved a complete success during the 11 years in which it has been

working, and the net profit to Government during this period is estimated to have been R23,600. In Changa Manga, where a tramway 4 miles in length has been working for some 17 years, the cost of carriage of fuel by tramway has been much the same as it would have been had country carts, paid at prevailing rates, been employed. But the number of local carts is quite insufficient for the work, others would have to be imported from elsewhere and the rates would certainly rise.

The following statement gives particulars of the forest tramways at present working in India, and in it an endeavour has been made to contrast the cost of carriage per 100 maunds by the various tramways, with that by other means of transport obtainable in the same locality :—

1	2	3	4	5	6	7
Total length of tramway.	Gauge.	Description, and weight of rails.	Motive-power.	Capital outlay per mile.	Working expenses per 100 maunds per mile	Cost of carriage of 100 maunds per mile by other means in similar localities.
		Changa Manga.		R		
4 miles	16"	Surface level; no preparation required for laying tram, the direction of which is changed as required.	Bullocks	6,955	R0 14-3 (includes interest at 4 per cent. on capital outlay, estimated value of wear and tear and working expenses).	R0-16-11.
		Andamans.				
6¼ miles	2 feet	Steel, 18 lbs. per yard.	Manual labour and draft animals.	9,322	R1-0-1 (includes depreciation on cost of rail material at 10 per cent.).	Cart transport pays only where small quantities of timber are to be brought from scattered fellings.
		Srihariкota.				
5¾ miles	2 feet	Steel, 14 lbs. per yard, with steel corrugated sleepers and wrought steel chairs riveted on full width of sleepers.	Manual labour	4,295	R1-0-10 (includes interest on capital at 4 per cent. and 6 per cent. for wear and tear).	R1-0-3.
		Kottapatum Casuarina Plantation.				
4 miles	2 feet	Steel, 14 lbs. per yard, with steel corrugated sleepers and wrought steel chairs riveted on full width of sleepers.	Manual labour	5,261	R1-4-10 (includes interest on capital at 4 per cent. and 6 per cent for wear and tear).	R3-1-5.
		Anamalai.				
7 miles (4 miles and 5 furlongs only laid).	2 feet	Steel, 14 lbs. per yard, with steel corrugated sleepers and wrought steel chairs riveted on full width of sleepers.	Bullocks	10,489	(*a*) R1-10-0 (includes interest on capital at 4 per cent. and 6 per cent. for wear and tear).	R1-2-6.
		Cuddapah.				
3½ miles (only 1½ miles permanently laid, the remainder is used for lines required temporarily.	2 feet	Steel, 10 lbs. per yard.	Manual labour	...	(*b*) R4-8-8 (includes interest on capital outlay at 4 per cent).	R3-4-0 by double bullock cart.

The above tramway material was obtained either through the India Office, Messrs. King, King & Co., Bombay, or from Messrs. John Fowler & Co., Leeds, whose agents in Calcutta have an office at No. 89, Clive Street.

(*a*) Comparatively high rate due to greater expense of working tramway in hilly country.

(*b*) Information not available as to the comparatively high cost of working. Doubt is expressed if there will be sufficient material or sufficient steady demand to make the line pay.

A total expenditure of ₹2,52,800 was incurred on buildings, as compared with ₹2,15,300 during the previous year. The question of providing suitable accommodation for the Subordinate Establishment received considerable attention, and much good work was done in this direction in most of the provinces.

The total expenditure on communications and buildings was ₹3,96,747, as against ₹3,81,920 during the previous year. Details of expenditure on new work and on repairs in the different provinces are exhibited in the following table:—

Province.	New Work.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	₹	₹	₹	₹	₹
Bengal	18,507	14,133	8,929	9,317	50,886
North-Western Provinces and Oudh	32,883	10,906	17,146	43,252	1,04,187
Punjab	6,423	1,408	3,364	2,260	13,455
Central Provinces	15,511	3,027	4,157	4,823	27,518
Burma (Lower)	31,324	29	4,836	2,083	38,272
Burma (Upper)	23,980	1,756	4,023	8	29,767
Assam	8,172	638	9,322	2,737	20,869
Coorg	1,992	1,469	1,192	1,125	5,778
Ajmere	99	149	88	384	720
Baluchistan	46	...	367	...	413
Andamans	482	968	68	910	2,428
Berar	3,811	816	2,382	6,809	13,818
Total Bengal Presidency	1,43,230	35,299	55,874	73,708	3,08,111
Madras Presidency	25,228	12,316	15,880	15,997	69,421
Bombay „	5,948	3,526	6,713	3,028	19,215
Grand Total	1,74,406	51,141	78,467	92,733	3,96,747

The more important work done in the different provinces during the year is shown below.

Bengal.—The following statement compares the expenditure of the year with that of the previous year:—

Nature of work.	Buildings.		Roads and Bridges.		Total.	
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.
	₹	₹	₹	₹	₹	₹
New construction	6,623	18,507	10,227	14,133	16,850	32,640
Repairs	9,410	8,929	7,046	9,317	16,456	18,246
Unapportioned	314	571	93	1,011	407	1,582
Total	16,347	28,007	17,366	24,461	33,713	52,468

Thus both on buildings and on communications there was a considerably increased expenditure. The principal new buildings were inspection bungalows at Rishop (₹3,900), Mamrim (partly built, ₹1,018), Purnakot (₹1,138), on the Feni river (₹1,900), at Hazarikhil (₹1,900). An office bungalow was constructed at Khurda (₹1,449). A revenue station-house at Dhaki and several smaller houses were built for the use of Range officers. Ninety-seven miles of new roads were constructed at a cost of ₹14,000. Of these 24 miles were in the Darjeeling Division and 26 miles in the Singhbhum Division.

North-Western Provinces and Oudh.—The expenditure was less than in the previous year by some R20,000, due partly to efforts made to reduce expenditure, partly to the fact that road and building work in these provinces is nearing completion. The Local Government remark—

"The nature and cost of the works executed under this head during the year are summarised and compared with the results of the previous year in the following table :—

Circle.	Roads and Bridges.		Buildings.		Other works.	Total.	Percentage on gross expenditure
	New works.	Repairs.	New works.	Repairs.			
	R	R	R	R	R	R	R
Central	3,264	26,294	3 330	5,173	1,191	39,252	12·24
Oudh	4,252	9.075	*22,773	†6.092	3,352	45,454	15·08
School	3,390	7,883	4,994	5,515	1,813	23,595	7·61
Total	10,906	43,252	31,097	16,690	6,356	1,08,301	11·62
Total, 1895-96	54,158		47,787		6,356	1,08,301	11·62
Total, 1894-95	64,172		55,576		6,444	1,29,741	13 39"

* Exclusive of expenditure on construction of wells (R1,786).
† Exclusive of expenditure on repairs to wells (R456).

The only important expenditure on new building work took place in the Oudh Circle, where R24,500 were spent. The chief works were 2nd class rest-houses in Kheri and Bahraich and a head-quarters house in Gonda. Eight quarters for Rangers or Guards were also taken in hand or completed. Under roads the main expenditure was R26,000 spent on repairs in the Central Circle, where the nature of the country involves heavy annual repairs to the export roads from the hill forests to the plains. In this Circle 53 miles, in the Oudh Circle 27 miles, and in the School Circle 43 miles of new roads were constructed.

Punjab.—The following contrasts the expenditure of the year with that of 1894-95 :—

Year.	Buildings.			Roads and Bridges.		Total.
	New work.	Repairs.	Total.	New work.	Repairs.	
	R	R	R	R	R	R
1894-95	5,326	3,916	9,242	1,790	2 799	4,589
1895-96	6 423	3,364	9.787	1,408	2,260	3,668

The bungalows at Ulánsa, Nadáon and Taklech commenced in previous years were finished. A small rest house was made at Pakka Mari, and a rest-house at Langera was commenced, and a house at Nachar was completed. Five new Range-quarters and 4 Guards' huts were built as well as an office at Kalatop, and at the Chenab sale depôt a good deal of work still remains in building quarters for the subordinate staff. Road-work was, with the exception of Chánga Mánga, where 126 miles of road were repaired, confined to the Hill Divisions; 46 miles of new roads and paths were constructed, chiefly narrow inspection paths. Eight miles were made in Hazara along the Kunhar river, 8 miles in the Khanpur range, 7½ miles in Chamba, 7 miles in Bashahr, and nearly 7 miles in Kalesar.

Central Provinces.—The expenditure of the year, compared with that of the previous year, was as follows :—

Nature of work.	Buildings.		Roads and Bridges.		Total.	
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.
	R	R	R	R	R	R
New construction	9.245	15.511	8.587	3,027	17,832	18,538
Repairs	4,238	4,157	6,030	4,823	10,268	8,980
Total	13,483	19,668	14,617	7,850	28,100	27,518

In the Southern Circle, several new roads, aggregating 83 miles, were commenced or completed at a cost of R3,000, whilst 1,536 miles of roads were repaired at a cost of nearly R4,000. A considerable amount of building was done; 145 new works were completed at a cost of R13,800. Four rest-houses, costing R2,200, and three Sub-Divisional Officers' quarters, costing R1,190, were built; the remaining expenditure was incurred in much needed work in

the direction of providing decent accommodation for the Subordinate Staff. Forty-one quarters for rangers, sub-rangers, and foresters, and 89 quarters for forest-guards were built.

In the Northern Circle, no new work under communications and buildings was undertaken, with the exception of one mile of new road and the construction of 31 new quarters for the Subordinate Establishment at a cost of R1,700.

Burma.—In Lower Burma an expenditure of R3,239 was incurred on new buildings in the Tenasserim Circle, and of nearly R29,000 in the Pegu Circle. Of this latter sum R8,100 were spent on a site for a forest bungalow at Rangoon; a house at Zigon, in the Tharrawaddy Division, was built at a cost of R4,600, and a similar house at Tharrawaddy was commenced. In Pegu a new forest office cost R7,000, and in Henzada R4,000 were spent on a house and office at head-quarters. There was no road-work, but R2,800 were spent on blasting obstructions in floating streams draining the North Nawin and the Chaungzauk reserves.

In Upper Burma nearly R24,000 was spent on new buildings; the principal works were the re-roofing with shingles of the Bhamo Divisional office and bungalow (R3,000), the completion of the Tigyaing office and house (R2,900), the purchase of a bungalow at Katha (R4,000), and at Magok (R2,000); eight smaller rest-houses were constructed at a cost of R2,200. Under roads and bridges R1,756 were spent on new work, the most important items being R1,453 spent in the Bhamo Division on the construction of two roads, one of 11 miles, the other of 5 miles in length. No departmental blasting work was done.

Assam.—The following table shows the expenditure incurred under this head, as compared with that of the previous year:—

Nature of work.	Roads.	Buildings.	Other works.	Total.
	R	R	R	R
New construction	638	8,172	125	8,935
Repairs	2,737	9,322	977	13,036
Total, 1895-96	3,375	17,494	1,102	21,971
Total, 1894-95	2,580	15,141	889	18,610

There was thus but little expenditure on new roads, the chief items being a bridge over the Bamnai river in Goalpara, and the completion of the Dhonipara-Kulsi and the Barduar-Choygaon roads in Kamrup; 224 miles of roads were kept in repairs. Under buildings the chief item of expenditure was the purchase of a bungalow at Tezpur (R4,020). Range offices were built at Guma and at Darrang. Rupees 9,300 were spent on repairs to existing buildings and R1,100 on fencing and clearing compounds.

Coorg.—Thirty-three miles of new roads were made at a cost of R1,469. In North Coorg but little remains to be done in the matter of new roads, while in South Coorg a few more roads are required. Rupees 1,125 were spent on repairs.

No important building work was undertaken, but various small works were completed at a cost of some R2,000. Repairs cost R1,100.

Ajmere.—Nine miles of new roads were completed at a cost of R248. Repairs cost R384. The roads and paths are stated to be in a very backward state, particularly in Merwara.

A house and office were completed by the Engineering Department, and two new houses for Guards were made.

Baluchistan.—A new path, about 1 mile, was made in the Zangi Lora Plantation by the ordinary establishment; two new huts for Guards cost R46, and repairs to buildings cost R367.

Andamans.—Rupees 1,878 were spent on communications, of which R632 were on account of lifting 2 miles of tram-lines from Ali Musjid to Kadakachang, and in laying about ¼ a mile of tramways there: R910 were spent on repairs to existing tramways, R550 were spent on buildings.

Berar.—The charges of the year compare as follows with those of the year before:—

Nature of work.	1894-95.	1895-96.
	R	R
Roads	13,806	7,625
Buildings	9,934	6,193
Wells	1,182	1,230
Total	24,922	15,048

There was thus a considerable reduction in expenditure. One mile of new cart-road and 14 miles of new bridle-paths were constructed and repairs were carried out costing R6,800.

Of the R6,193 spent on buildings, R2,300 were spent on repairs, whilst new works were—1 rest-house (R1,200), 1 office (R1,700), 2 Rangers' quarters (R450), 1 revenue-station (R30) and 2 Guards' houses (R89).

Madras.—The expenditure was as follows, as contrasted with the previous year:—

Nature of work.	1894-95.	1895-96.
	R	R
Roads and bridges	32,007	28,813
Buildings	34,143	41,108
Other works	3,263	2,662
Total	69,413	72,083

Expenditure thus shows a decrease under roads and other works but an increase under buildings which occurred in the Northern and Southern Circles.

The question of a general scheme of forest roads has not been lost sight of but remains pending until more progress has been made in working-plans. Of new road-work during the year, 28 miles in Kistna (R2,266), the Peddur road in North Arcot, 2 miles (R1,940), 6 miles in the Nilgiris (R884), contribution towards the Anamalai-Sethumadai road (R2,385) were the chief items, whilst R16,000 were spent on repairs.

The results of the tramway working up to 30th June 1896 have been calculated to be—

	Net loss.	Net profit.
	R	R
Sriharikota	747	...
Casuarina plantation, Nellore	...	23,603
Cuddapah	3,742	...
South Coimbatore	22,004	...

Of the amount spent on buildings, the chief works were part construction of a range house at Nandyal (R3,190), rest houses at Bhakrapet, Cuddapah District (R935), at Talamalai (R1,615), near Bellaju (R1,605), at Thattakarai (R1,069), at Punachi (R825), at Kansapuram (R761), at Chettimadum (R680) and at Paliangudi (R786). Numerous other smaller works, rangers' and subordinates' quarters and sandalwood storing houses were also carried out. R15,800 were spent on repairs to existing buildings.

Bombay.—The following statement shows the expenditure incurred, by Circles:—

Circle.	New Work.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	R	R	R	R	R
Northern	3,482	100	3,046	647	7,275
Central	1,562	...	759	157	2,478
Southern	692	3,426	2,573	2,224	8,915
Sindh	212	...	335	...	547
Total	5,948	3,526	6,713	3,028	19,215

There was thus a total expenditure of R19,215, as compared with R20,720 during the previous year.

In the Northern Circle three rest-houses were completed at a cost of R2,213, and several houses for forest-guards were completed. In the Central Circle the Vaijapur rest-house was completed (R912), four new wells were sunk (R350) and 31 houses for forest-guards were built (R300). In the Southern Circle two wells were sunk (R450) and R2,500 were spent on repairs. In Sindh R547 were spent, R200 of which were the cost of a new office building.

The only important road work was in the Southern Circle, where R3,426 were spent on the construction of 15 miles of new roads, chiefly in the Northern Division of Kánara.

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

The following table exhibits the breaches of forest laws during the year and shows how they were disposed of:—

Province.	Number of cases taken into Court.		Number of cases compounded.		Total.		Proportion of Convictions to total number of cases decided by the Courts.	
	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.
							Per cent.	Per cent.
Bengal	264	125	1,163	958	1,427	1,083	89·7	92·0
North-Western Provinces and Oudh	125	128	637	530	762	658	84·0	81·2
Punjab	1,058	907	2,317	1,952	3,375	2,859	81·3	81·5
Central Provinces	372	216	4,285	3,542	4,657	3,758	80·7	79·6
Burma (Lower)	(a)434	(b)423	2,158	2,593	2,592	3,016	88·7	87·0
Burma (Upper)	389	216	428	(c)344	817	560	75·1	74·1
Assam	122	138	311	339	433	477	81·1	83·3
Coorg	8	12	130	207	138	219	62·5	83·3
Ajmere	46	43	25	19	71	62	100	97·6
Baluchistan	72	41	7	35	79	76	90·3	87·8
Andamans	1	...	...	...	1	...	100	...
Total	2,891	2,249	11,461	10,519	14,352	12,768	82·1	82·6
Berar	95	134	618	704	713	838	77·9	70·1
Total Bengal Presidency	2,986	2,383	12,079	11,223	15,065	13,606	81·9	81·9
Madras	3,862	4,039	4,531	5,109	8,393	9,148	79·4	81·5
Bombay	2,632	2,493	4,843	3,660	7,475	6,153	80·4	78·8
GRAND TOTAL	9,480	8,915	21,453	19,992	30,933	28,907	80·5	80·8

(a) Includes 76 cases in which the persons implicated absconded.
(b) Includes 31 cases in which the persons implicated absconded, and which were not taken into account in the Review for 1894-95.
(c) Erroneously entered as 449 cases in the Review for 1894-95.

The number of cases taken into Court has somewhat increased.

For this the larger provinces in the Bengal Presidency, except the North-Western Provinces and Oudh, are mainly responsible. However, even now the number of cases taken into Court and the convictions obtained compare favourably with the same incidents in Madras and Bombay. The proportion of cases compounded is much larger in the Bengal Presidency than in either of the others.

The following table classifies the cases of which cognizance was taken during the year, as well as those in which the offenders remained undetected, under the various heads of offences, and is consequently much more instructive from a Forester's point of view than the general table above. It gives a good

idea of the main difficulties the department has to deal with in protecting the State property entrusted to it—

PROVINCE.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				Grand total of cases.
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	
Bengal	55	157	13	38	2	683	418	27	96	2	...	...	153	847	431	65	1,496
N.-W. P. and Oudh	24	59	14	40	41	239	155	205	6	...	...	...	71	318	169	245	803
Punjab	114	561	269	92	1	977	1,332	72	339	49	16	9	454	1,587	1,617	173	3,831
Central Provinces	176	123	36	44	96	2,834	1,264	224	102	69	...	...	374	3,046	1,300	268	4,988
Burma (Lower)	27	344	1	87	3	1,927	3	341	14	9	...	1	44	2,280	4	429	2,757
Burma (Upper)	4	320	...	40	1	253	...	176	5	5	...	...	10	587	...	216	813
Assam	6	94	1	8	...	289	1	21	4	5	...	1	10	388	2	30	430
Coorg	3	5	2	1	...	4	91	35	...	...	...	...	3	9	93	36	141
Ajmere	1	43	2	...	...	24	1	...	...	...	...	...	1	67	3	...	71
Baluchistan	...	56	25	3	...	7	...	...	3	11	1	4	3	74	26	7	110
Andamans	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Total	410	1,772	363	353	144	7,262	3,265	1,101	569	170	17	15	1,123	9,204	3,645	1,469	15,441
Berar	13	51	4	23	15	482	87	29	36	21	...	1	64	554	91	53	762
Total Bengal Presidency.	423	1,823	367	376	159	7,744	3,352	1,130	605	191	17	16	1,187	9,758	3,736	1,522	16,203
Madras		Details	not ava	ilable									94	4,930	3,829	757	9,610
Bombay	114	940	1,037	562	67	1,468	3,041	275	2,093	1,588	184	116	2,274	3,998	4,262	953	11,485
GRAND TOTAL	...	...	...	...	...	...	...	...	...	...	...	...	3,555	18,684	11,827	3,232	37,298

In the Bengal Presidency, 1,187 conflagrations occurring in fire-protected forests were attributed to intentional firing. In the large majority of cases this was not, it may be assumed, done with malicious intent, but in order to obtain new grass, for purposes of shikar or through mere carelessness. It is astonishing how difficult it is to impress upon the uneducated native mind the amount of damage that is done by setting light to a forest. They will not realize it, and it requires time and patience and help from the Revenue authorities to educate the natives in this respect and to eradicate inherited habits; but it is evident from the constant increase of the areas which in most provinces escape being burnt without special means of protection, that considerable progress has been made in teaching the necessary respect for forest property. Exemplary punishments are needed only where malice has been proved.

In the Bengal Presidency the cases connected with fire in specially protected forests amounted to 7·33 per cent. of the total of all cases, in Madras to 0·97 per cent., and in Bombay to 19·79 per cent. Grazing in closed forests accounts in the Bengal Presidency for 23·05 per cent. of all cases, in Bombay for 37·10 per cent., and in Madras for 39·84 per cent. The balance of the offences is made up by unauthorized felling, theft from the forests and in transit, and minor offences. Most of such offences mean an immediate loss of revenue, but as a rule do not affect the well-being and reproduction of the forests in the same way as those committed in respect of fires and of illicit grazing in forests in the stage of reproduction.

II.—Protection from Fire.

It has already been shown in the foregoing paragraphs, dealing with general protection, that a considerable percentage of the offences against the forest laws is connected with forest fires. It is evident that it would be of great use if the information under this head was further investigated and tabulated as proposed in the Inspector-General of Forest's review for 1894-95, but the

necessary information is not forthcoming in the reports, and the attempt has to be postponed.

The following table shows the progress and cost of protection of forests from fire by artificial isolation and special fire guards :—

PROVINCE.	Area, in square miles.				Proportion of Failures to area attempted.		Cost				Proportion of area under fire-protection to total area of forests in charge of the Forest Department.	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.
					Per cent.	Per cent.	R	R	Pies.	Pies.	Per cent.	Per cent.
Bengal	1,957	1,874	1,373	1,865	29·8	0·5	7½	5½	2	1½	14·66	14·45
North-Western Provinces and Oudh	2,840	(a)2,804	2,514	2,780	11·47	0·8	21½	18½	7·2	6	72·76	71·84
Punjab	703	639	643	589	8·5	7·8	4	4	1·3	1·3	11·66	10·72
Central Provinces	5,875	(b)5,475	5,435	5,282	0·6	3·5	10½	10	3	2½	29·87	27·46
Burma (Lower)	781	615	712	550	8·8	10·6	·59	·61	47½	18	10·57	8·69
Burma (Upper)	526	406	467	389	11·0	4·6	12½	10	8½	3	9·67	9·25
Assam	1,202	1,193	1,053	1,192	12·39	·0·08	9	8	2½	2½	7·81	6·76
Coorg	204	(c)205	182	169	10·8	17·1	51	46	16	14	22·87	22·61
Ajmere	127	127	127	127	...	...	2½	2	0·60	0·33	85·23	85·23
Total	14,215	13,339	12,556	12,913	11·6	2·9	15½	13½	4·7	3·3	*19·70	*17·77
Berar	1,419	1,397	1,391	1,390	2·0	0·5	9½	9½	3	3	33·96	33·43
Total Bengal Presidency	15,634	14,736	13,947	14,333	10·8	2·7	15½	13	4·6	3·6	*20·48	*18·69
Madras	5,594	(d)4,833	5,241	4,511	6·3	6·9	8	9½	2½	3½	29·32	25·72
Bombay	9,403	(e)9,359	8,721	8,867	7·2	5·2	3½	3½	1·1	1·0	62·81	65·59
GRAND TOTAL	30,631	28,928	27,909	27,741	8·9	4·1	10½	9½	2·11	2·6	*27·75	*25·61

* Andamans and Baluchistan left out of account, as no special measures were there taken for protection against fire.

(a) Difference of 164 square miles between this figure and that entered in the Review for 1894-95 is due to correction for that year made by the Conservator of Forests, Central Circle, in the 1895-96 Report. The necessary alterations have been made in the corresponding columns that follow.

(b) Difference of 1,046 square miles between this figure and that entered in the Review for 1894-95, is due to revised figures having been furnished by the Conservator of the Northern Circle. The necessary alterations have been made in the corresponding columns that follow.

(c) Erroneously entered as 205 square miles in the Review for 1894-95. The necessary alterations have been made in the corresponding columns that follow.

(d) Difference of 446 square miles between this figure and that entered in the Review for 1894-95, is due to revised figures having been furnished by the Conservators, Central and Southern Circles, in the 1895-96 Reports. The necessary alterations have been made in the corresponding columns that follow.

(e) Difference between this figure and that entered in the Review for 1894-95 is due to the fact that in the 1894-95 returns the area of the Dangs, 678 square miles, was erroneously shown as specially protected.

An attempt has been made to analyse the causes of fire in specially-protected areas in the following tabular form ; but it will be seen that only a few Circles have given the information required for this purpose.

The importance of this form to the local Forest Administrations is great, in so far as it shows at a glance the efficiency of the protection afforded against fires entering from the outside, and should give a good idea with regard to the main sources of fires originating in the interior of protected areas and of the chief dangers which have to be guarded against. In one Circle all fires caused during the year by intentional firing are attributed to malice, and in another none. The information is probably incorrect in either case, and until the Form is fully understood in all divisions and its importance recognized, no general useful conclusions can be drawn.

Provinces.	(A.) Fires caused by accident or through carelessness in burning fire-lines.		(B.) Fires entering the forests by crossing exterior fire-traces.		By workmen employed in the forests by purchasers of forest-produce and by pah-cutters either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests either accidentally or through carelessness.		By Railway engines.		By lightning, or by fire-balloons.		By intentional firing.						Causes unknown.		Total (A), (B) and (C).	
													In order to obtain new grass.		In order to turn out game, or to reduce cover.		Maliciously.		Total.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
Bengal	Details not given in Report.																					
N.-W. P. and Oudh. — Central Circle	Details only partially given in Report.																					
N.-W. P. and Oudh. — Oudh Circle	6	3,222	12	15,955	...	...	5	48,738	...	...	...	...	...	...	...	...	55	45,553	55	45,553	6	1,428	84	114,904
N.-W. P. and Oudh. — School Circle	10	146	5	1,612	4	321	17	1,920	...	...	3	1,200	...	...	...	...	10	8,791	10	8,791	7	6,034	56	20,294
N.-W. P. and Oudh. — Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Punjab	...	...	71	20,161	...	...	150	12,279	6	121	...	...	201	68,587	...	...	...	...	201	68,578	96	16,949	524	118,097
Central Provinces. — Northern Circle	Details not given in Reports.																					
Central Provinces. — Southern Circle																						
Central Provinces. — Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lower Burma — Pegu Circle	5	...	...	...	22	...	6	...	...	...	...	...	...	...	...	...	20	...	20	...	1	...	54	34,105
Lower Burma — Tenasserim Circle	4	93	...	...	4	2,439	4	342	...	...	...	...	...	...	...	...	...	...	...	...	5	7,731	17	10,605
Lower Burma — Total	9	...	...	...	26	...	10	...	...	...	...	...	...	...	...	...	20	...	20	...	6	...	71	44,710
Upper Burma — Eastern Circle	Details only partially given in Reports.																					
Upper Burma — Western Circle																						
Upper Burma — Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Assam	7	362	9	27,000	...	...	...	...	...	...	...	...	...	...	2	355	4	1,678	6	2,033	...	...	22	29,395
Coorg	14	1,789	...	...	4	3,573	...	...	...	...	...	...	...	...	...	...	14	8,915	14	8,915	...	...	32	14,277
Ajmere	1	3	1	30	...	...	...	...	1	½	...	...	...	...	...	...	...	...	...	...	...	...	3	33½
Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	2	...	3	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	5	2,153	1	4,500	13	1,650	...	...	...	...	...	...	...	...	...	...	4	5,336	4	5,336	8	4,094	30	17,733
Madras — Northern Circle	Details only partially given in Reports.																					
Madras — Central Circle																						
Madras — Southern Circle																						
Madras — Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay — Northern Circle	Details only partially given in Reports.																					
Bombay — Central Circle																						
Bombay — Southern Circle																						
Bombay — Sindh Circle																						
Bombay — Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

III.—Regulation of Grazing.

The table below shows that the area entirely closed to grazing amounted in the Bengal Presidency to 35·78 per cent. of the whole forest area in charge of the Department, in Madras to 12·9 per cent. and in Bombay to 18·53 per cent. In addition 19·69 per cent. are closed against browsers in the Bengal Presidency, 84·56 per cent. in Madras, and 45·66 per cent. in Bombay. The large percentage of entire closure in the Bengal Presidency, as compared with Madras and Bombay, is due to the fact that the former includes several large provinces (Bengal, Burma and Assam) in which practically no demand exists for grazing inside reserves. The increase in the acreage closed in this Presidency is more than accounted for by the addition of new reserves in Burma. In Bombay the reports show that the area entirely closed to grazing was reduced by 376 square miles or by upwards of 10 per cent. This concession was, however, but partially extended to closure against browsers and the area in this column shows consequently an increase of 284 square miles.

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,877	5,041	20	3,437	2,179	11	4,034	1	...	13,348	7,221	31
North-Western Provinces and Oudh	3,766	1,714	571	91	16	4	43	1	30	3,903	1,731	609
Punjab	1,680	531	335	1,376	7	97	2,972	61	224	6,028	599	656
Central Provinces	19,293	2,919	3,631	...	...	...	364	...	23	19,657	2,919	3,657
Lower Burma	7,379	6,958	7,319	...	...	...	...	...	...	7,379	6,958	7,319
Upper "	5,430	4,465	2	...	...	...	...	...	...	5,430	4,465	2
Assam	3,683	2,688	987	...	...	...	11,688	...	...	15,373	2,688	987
Coorg	238	3½	...	654	...	...	...	...	...	892	3½	...
Ajmere	139	36	103	...	...	...	10	...	10	149	36	113
Baluchistan	175	121	...	...	...	...	...	...	...	175	121	...
Andamans	73	...	...	...	...	...	1,981	...	...	1,954	...	...
Berar	4,179	1,330	61	...	...	...	...	...	...	4,179	1,330	61
Total Bengal Presidency	51,921	25,611½	15,056	5,561	2,202	112	20,992	63	287	28,474	28,079½	15,425
" Madras "	12,388	Details not available.		...	...	...	6,690	Details not available.		19,078	2,465	16,133
" Bombay "	12,173			2,786	Details not available		...			14,959	2,772½	6,832½
Grand Total	...	...	...	...	...	...	...	...	...	112,511	33,316½	38,419½

The following table shows, so far as information is available, the number of animals which in each circle grazed in the forests open to grazing :—

ROYAL ASIATIC SOC. OF THE

Province.	Circle.	Grazed free.																			
		At full rates.					At privileged rates.					By right under Settlement.					During pleasure of Government, or otherwise than under Settlement.				
		Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal		6,698	11,999	1,575	...	14	8,688	175,632	19,429	...	548	49,191	156,335	49,191	...	...	45	219	...	...	5
N.-W. P. and Oudh.	Central	23,148	88,728	3,970	10	3,530	1,313	5,133	52,027	...	275	27,835	82,177	15,638	...	880	5,452	31,345	682	...	32
	Oudh	10,986	47,531	2,612	...	163	16,406	102,541	2,909	...	110	2,878	19,987	...	...	...	1,049	3,780	362	...	171
	School	10,328	38,764	14,345	9,915	11,549	1,174	8,530	123	...	...	399	18,331	61,464	...	...	13	1,354	...	...	...
	Total	44,462	175,023	20,927	9,925	15,242	18,893	116,204	55,059	...	385	31,112	120,495	77,102	...	880	6,514	36,479	1,044	...	203
Punjab		38,868	106,476	327,738	5,626	552	1,300	16,412	235,070	109	1,204	17,250	148,211	112,629	176	2,604	3,054	9,210	5,260	500	30
Central Provinces.	Northern	113,609	582,232	27,939	109	1,061	8,503	33,969	2,841	...	39	...	...	...	...	...	47,261	171,583	25,612	...	...
	Southern	117,593	1,014,630	164,847	...	433	...	...	...	...	...	...	...	...	...	...	284	4,598	124	...	...
	Total	231,202	1,596,862	192,786	109	1,494	8,503	33,969	2,841	...	39	...	...	...	...	...	47,545	176,181	25,736	...	...
Burma (Lower)	Pegu	466	1,105	...	...	...	...	...	...	...	...	10,599	46	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	3,132	304	49	...	23	...	...	...	...	...
	Total	466	1,105	...	...	...	...	...	...	...	...	13,731	350	49	...	23	...	...	...	...	...
Burma (Upper)	Eastern	...	...	...	...	...	...	...	...	...	...	...	9,720	...	...	...	3,000	...	...	...	400
	Western	40	...	...	...	...	...	12	...	...	...	109	4,920	...	...	...	80	...	...	...	...
	Total	40	...	...	...	...	...	12	...	...	...	109	14,640	...	...	...	3,080	...	...	...	400
Assam		18,315	4,374	56	...	79	...	...	...	...	...	...	...	...	...	...	274,601	565,184	66,915	...	3 375
Coorg		469	8,161	...	...	...	...	...	...	...	...	...	5,601	...	...	...	...	...	...	...	...
Ajmere		...	25	...	...	...	133	541	...	...	...	678	5,218	...	...	...	...	...	...	...	...
Baluchistan		104	876	4,968	...	...	...	...	...	...	...	...	671	15,622	1	221	...	...	...	...	...
Andamans		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar		120,307	681,630	275,274	122	8,529	1,707	23,661	...	...	...	48	79,187	...	...	...	17	4,826	...	...	...
	Total Bengal Presidency.	460,931	2,586,531	823,324	15,782	25,910	39,224	366,431	312,399	109	2,176	112,119	530,658	254,593	177	3,731	334,856	792,099	98,955	500	4,013
Madras Presidency.	Northern	Information not available.																			
	Central																				
	Southern																				
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
Bombay Presidency.	Northern	1,711	9,492	...	...	...	1,546	6,922	...	...	...	3,032	3,900	...	...	...	49,086	227,355	18,421	...	628
	Central	13,682	108,991	401,269	...	7,823	49,495	456,037	186,314	...	925	...	...	...	...	...	27,538	235,340	494	...	1,011
	Southern	6,505	16,707	63,776	...	251	102,311	282,705	82,617	...	172	...	...	...	...	...	25,412	86,220	788	...	...
	Sindh	60,716	72,102	342,109	8,779	1,369	8,500	21,127	53,368	805	...	4,355	20,890	...	...	624	88	583	352	164	718
	Total	82,614	207,292	807,254	8,779	9,443	573,770	766,791	322,299	805	1 097	7,387	24,790	...	...	624	102,124	549,498	20,055	164	2,357

A large decrease took place in the number of animals of all kinds which were grazed in the forests of the Central Provinces and the Berars at full rates, and though in the Central Provinces several hundred thousand animals were admitted at privileged rates and free during the pleasure of Government, the total deficiency in comparison with previous years is still considerable. This is doubtless due to the scarcity which prevailed and caused the death of a large number of cattle.

In all other provinces the number of animals admitted to forest grazing has either remained stationary or increased, but there is no information available as regards Madras.

The extremely liberal policy as regards forest grazing is clearly indicated by the following table, which shows that whilst R15,04,000 were realized on this account during the year, R14,30,000 were foregone:—

Province.	Circle.	Amount realized.	Amount foregone.
		R	R
Bengal	.....	17,118	92,900
North-Western Provinces and Oudh	Central	20,346	41,800
	Oudh	25,654	16,800
	School	22,100	10,700
	TOTAL	68,100	69,300
Punjab	.....	74,756	1,50,100
Central Provinces	Northern	1,53,541	45,800
	Southern	1,77,237	600
	TOTAL	3,30,778	46,400
Lower Burma	Pegu	909	80
	Tenasserim	.....	3,800
	TOTAL	909	3,880
Upper Burma	Eastern	.....	7,900
	Western	21	10,500
	TOTAL	21	18,400
Assam	.....	11,065	2,63,500
Coorg	.....	2,275	1,400
Ajmere	.....	2,032	3,800
Baluchistan	.....	743	8,500
Andamans	.....	.....	.....
Berar	.....	2,11,936	22,250
Total Bengal Presidency	.....	7,19,729	6,80,430
Madras Presidency	Northern	1,24,747	1,40,100
	Central	1,62,681	400
	Southern	53,068	1,700
	TOTAL	3,40,496	1,42,200
Bombay Presidency	Northern	6,793	1,37,000
	Central	2,79,369	3,47,800
	Southern	1,00,638	94,100
	Sindh	57,110	28,600
	TOTAL	4,43,910	6,07,500
	GRAND TOTAL	15,04,135	14,30,130

The number of cattle impounded has not been recorded in the majority of the reports and the table below is again very incomplete. However it shows that the impoundings vary enormously in the different provinces. In the Punjab some 1,032,000 head of cattle of all kinds were grazed in the forest under the control of the Forest Department, and in Bombay some 3,487,000; but whereas in the former province only 26,002 animals (2·5 per cent.) were impounded, 373,196 (10·7 per cent.) were treated in this manner in the Bombay Presidency—

Province.	Circle.	Cases of illicit grazing.	Number of head of cattle impounded.
Bengal	.....	431	1,697
North-Western Provinces and Oudh	Central	44	?
	Oudh	90	?
	School	35	?
	TOTAL	169	?
Punjab	.....	1,617	26,002
Central Provinces	Northern	510	?
	Southern	790	?
	TOTAL	1,300	?
Lower Burma	Pegu	2	.....
	Tenasserim	2	.....
	TOTAL	4	.....
Upper Burma	Eastern	.....	.....
	Western	.....	.....
	TOTAL	.....	.....
Assam	.....	2	?
Coorg	.....	93	793
Ajmere	.....	3	2,455
Baluchistan	.....	26	4,266
Andamans	.....	.....	.....
Berar	.....	91	?
Total Bengal Presidency	.....	3,736	?
„ Madras Presidency	Northern	802	?
	Central	2,190	?
	Southern	837	?
	TOTAL	3,829	?
„ Bombay Presidency	Northern	79	7,852
	Central	2,295	321,994
	Southern	7	14,511
	Sindh	1,881	28,839
	TOTAL	4,262	373,196
	GRAND TOTAL	11,827	?

? Information not given in Reports.

IV.—Reproduction and Sylviculture.

Our working-plans prove that considerable attention is paid to the application of correct sylvicultural principles to our Indian forests. The progress in this direction has been good, and the treatment under which the principal timber-producing species most successfully reproduce themselves is now generally understood. The majority of officers in the higher grades, and many of those who were educated at the Dehra Forest School, occupy themselves with the study and solution of sylvicultural problems to an extent quite unknown not so very many years ago, when these studies were, so to say, the monopoly of a few officers in each Province. This growing interest in sylvicultural problems, the more general and more scientific applications of the principles taught to our officers during their technical training, may be ascribed to three main causes.

In the first instance there has been a considerable increase in the numerical strength of Divisional Officers, and in the proportion of technically-trained men amongst them.

The next reason is the great improvement which has taken place both numerically and in general efficiency in the India-trained staff, more especially in the Provincial and Ranger services. This naturally has its effect on the lower subordinate class, and the Divisional Officer is less a slave of close supervision over the executive carrying out of sylvicultural operations than he used to be, at a time not so far back, when he had to personally supervise each thinning, and the marking out of each improvement or regeneration felling.

The third and by no means the least important cause is found in the preparation of working-plans and the present centralization of their criticism and control. Each of such plans, or at least groups which refer to forests of a similar character, contain sylvicultural problems and proposals to solve them by practical application of sound sylvicultural principles. No doubt sooner or later the valuable information now scattered through many volumes will result in monographs on the treatment of special distinct classes of forests. In the meantime we may well be satisfied with the general progress made in the study of Indian sylviculture and its practical application, and especially with the general interest taken in this, the Forester's most important duty; for though we have learned much there is still much more to learn.

Natural reproduction is so gradual and so few exceptional incidents occur, that it serves no practical purpose to record progress from year to year. The two main conditions which are necessary to obtain a satisfactory reproduction are a permanent protection from fire and from grazing whilst reproduction is actually in progress.

It has been brought forward by one or two officers in Burma that the danger to reproduction caused by fire has been overrated, and that under certain circumstances such fires, even if uncontrolled, are beneficial to the reproduction of teak. This is a matter of such importance that, though the Supreme Government's opinion on these remarks has been noted in last year's review, it is considered right to add here a short resumé of the opinion of a large number of officers, who were consulted by the Burma Government on the question in point. The officers consulted rank amongst the best and most

successful sylviculturists in the province, and the resumé of their opinions is given in the following note:—

It is desirable to remark, in the first place, that evergreen, tidal, and riparian forests need not be considered at all as they are not subject to fires; that it is necessary to treat the question of fire-protection as regards its effects upon the soil itself, upon the reproduction and upon the existing growing stock; and that for the general discussion of the subject it is advisable to separate the deciduous forests into the three following classes:—

(*a*) Those in which the valuable species occur with a dense under-growth of evergreen, periodically and gregariously flowering bamboos, which more or less prevent natural reproduction of the tree-growth except when the bamboos seed.

(*b*) Those in which the bamboo undergrowth possesses a lighter foliage and flowers sporadically as well as gregariously, and in which the reproduction of tree-growth can always take place, though more particularly at the time when the cover has been opened up by the general, but also sporadic, flowering of the bamboo.

(*c*) Those with an undergrowth of shrubs, herbaceous plants, and grasses only, and in which the valuable species are generally found as mixed forests, though occasionally, and more particularly in the case of cutch, growing in a pure state.

There is a general concensus of opinion that fire-protection does not actually result in the production of regular humus in any of the above classes of forests, but that nevertheless the condition of the soil is greatly benefited by protection and, on the other hand, its productive power injuriously affected by constant recurring fires. Where fire is common the fallen leaves and other decaying vegetable matters are transformed into a layer of ashes which is blown away by the wind and washed away by the rains, so that the whole benefit to the soil is lost; and this is not all, for the torrential rain of the south-west monsoon also removes the top layer and most nutritive portion of the soil itself, so that in unprotected forests it is found that the small stones do not rest on the general level of the ground, but are supported by little pinnacles of earth, left when the surrounding exposed soil was washed away. There can, however, be little or no doubt that in fire-protected forests, the manuring principles of the decaying vegetable substances are returned to the soil, not in the usual form of humus, but more indirectly through the fæces and decomposing bodies of the myriads of earth worms, ants, beetles, and other insects who consume such forest débris as fallen stems, dead wood, and leaves, and after extracting their requisite nourishment from it, emit the fæces, not in the form of more or less altered organic matter, but as a very fine, pure and fertile loam. It is true that this product also is liable to be washed away by the rain, but where fire-protection is successful the covering of dead leaves—and this is more particularly the case in forests of class (*a*)—lasts long enough to prevent the washing away of the surface soil before the live cover has re-established itself. The fact that fire-protection greatly benefits the soil is, then, beyond question.

In forests of class (*a*), protection from fire, or the occurrence of fire, can have no direct influence on the actual reproduction of trees, except during, and for some years after the flowering of the bamboos. It is possible then that a fire, occuring just when the culms begin to dry and before the bamboo seed has germinated, might be beneficial to the reproduction, but the cost to the growing-stock would be practically incalculable, and it is far from certain whether the fire, which would of necessity be a fierce one, might not very injuriously affect the seeding power of the mature trees during the critical period when reproduction can take place.

It is a fact that in forests of class (*b*), teak is better represented in areas subjected to fire than in protected forests, and that this is due to teak being more capable of withstanding, and to a certain extent of outgrowing, the effects of fire than any other tree. Nevertheless the effect of fires in forests of this class is most pernicious: for although we may obtain fewer teak seedlings in a fire-protected area, we know that those are healthier, grow faster and will yield better timber. We know also that by fire-protection we avoid constant injury to, and interference with, the development of the growing-stock while we prevent the steady deterioration of the soil.

Forests of class (*c*) are mainly important as cutch-producing areas and, as regards teak, are of no very great extent and are mainly confined to Upper Burma. The teak in them is chiefly produced in family groups, the formation of which can be encouraged and accomplished without the use of fires. The benefit conferred upon cutch-reproduction, by no other means

than fire-protection, is a matter of common knowledge, and no further arguments are needed to prove the advisability of protection in forests of this character.

The majority of the officers consulted are then in favour of fire-protection, and the question may be summed up by saying that while protection in teak forests increases the fertility of the soil, and at any rate tends to increase the luxuriance and rate of growth of all classes of the growing-stock, and ensures an eventual yield of good and sound material, the constant occurrence of fire can only result in the gradual deterioration both of the soil and the growing-stock. Finally, it is possible to ensure the advantage gained in certain forests by the occurrence of fires, that is to say, the better representation of teak, by means of improvement fellings, but it is impossible to safeguard them from the damage caused by fires by any means other than fire-protection.

The expenditure incurred on cultural operations, carried out for the purpose of assisting natural reproduction, is exhibited in the following table :—

	R		R
Bengal	6,100	Coorg	1,861
North-Western Provinces and Oudh	7,171	Ajmere	1,611
Punjab	1,986	Baluchistan	160
Central Provinces	1,289	Andamans	434
Lower Burma	14,813	Berar	1,090
Upper Burma	1,308	Madras	8,795
Assam	32	Bombay	13,357
		Total	R60,007

The table below shows the progress made in the artificial cultivation of compact areas :—

Province.	Area in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at the close of the year. Regular Plantations.	Taungyas.	Total.
Bengal	3,193	...	3,193	...	...	...	52	...	52	3,141	...	3,141
North-Western Provinces and Oudh.	3,119	...	3,119	...	...	...	...	...	...	3,119	...	3,119
Punjab	492	...	492	132	...	132	128	...	128	496	...	496
Burma (Lower)	4,001	35,552	39,553	...	(a) 5,820	5,820	...	...	...	4,001	41,372	45,373
Burma (Upper)	(b) 126	443	569	3	289	292	21	45	66	108	687	795
Assam	2,479	...	2,479	61	...	61	...	...	...	2,540	...	2,540
Coorg	2,002	(c) 103	2,105	100	103	203	...	...	...	2,102	206	2,308
Ajmere	(d)	...	...	...	...	...	...	...	...	...	...	..
Baluchistan	1,430	...	1,430	...	...	...	...	...	...	1,430	...	1,430
Andamans	81	...	81	...	...	...	...	...	...	81	...	81
Total	16,923	36,098	53,021	296	6,212	6,508	201	45	246	17,018	42,265	59,283
Berar	655	...	655	...	...	...	...	...	...	655	...	655
Total Bengal Presidency.	17,578	36,098	53,676	296	6,213	6,508	201	45	246	17,673	42,265	59,938
Madras Presidency	48,143	...	48,143	942	...	942	22,625	...	22,625	26,460	...	(e) 26,460
Bombay ,,	10,131	...	10,131	661	...	661	135	...	135	10,657	...	10,657
GRAND TOTAL	75,852	36,098	111,950	1,799	6,212	8,011	22,961	45	23,006	54,690	42,265	96,955

N. B.—Plantations which begin to yield major produce and are treated as forests have been excluded from this statement.

(a) Six acres obtained by rectification of previous area figures.

(b) Difference from the area shown in the Review for 1894-95 is due to the exclusion under this head of 19 acres classified as "Nurseries" and "Orchards."

(c) Increase of 103 acres as compared with entry made in the Review for 1894-95 is due to correction of Form No. 56 for that year in the Provincial Report for 1895-96.

(d) In the Review for 1894-95, 880 acres were shown under this head. It appears, however, from the Report for 1895-96 that this area comes instead under the head of "Cultural Operations."

(e) Includes 10,493 acres of topes.

The expenditure under this head was distributed over the various provinces as follows :—

	R		R
Bengal	832	Coorg	3,595
North-Western Provinces and Oudh.	1,220	Ajmere	...
Punjab	1,384	Baluchistan	8,455
Central Provinces	...	Andamans	...
Lower Burma	59,560	Berar	...
Upper Burma	2,999	Madras	34,070
Assam	6,659	Bombay	4,605

Total R1,23,379

CHAPTER III.

WORKING AND OUTTURN.

The outturn of all forests in timber and fuel, bamboos and minor forest produce, as well as the average outturn per square mile, is shown in the following statement :—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
										Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor product.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	13,422,401	7,949,619	1,10,885	19,275,595	1,544,331	2,69,690	544,569	5,435,533	26,415	2,131	1,331	18	5,009	1,253	60	135	2,695	2
North-Western Provinces and Oudh	6,315,959	12,011,405	2,57,715	4,530,335	282,591	46,940	791,165	253,300	2,954	1,677	3,189	68	17,132	2,262	189	12,320	5,656	68
Punjab	3,150,351	639,722	1,23,220	16,480,145	...	1,87,551	11,635,282	406,900	1,36,905	2,069	331	77	11,996	...	139	2,311	36	6
Central Provinces	14,280,258	13,468,091	5,70,191	...	...	...	...	...	...	731	685	29	...	...	...	...	...	...
Burma (Lower)	1,896,087	1,736,054	30,310	15,111,463	16,425,275	30,692	...	...	...	277	692	11	(a)	(a)	(a)	...	...	...
Burma (Upper)	1,365,683	1,382,721	92,752	11,891,752	19,164,015	2,31,273	...	...	...	918	238	8	(a)	(a)	(a)	...	...	...
Assam	1,283,543	1,658,220	5,025	...	...	...	11,354,898	3,563,547	3,97,721	377	488	14	...	...	...	971	305	331
Coorg	309,224	...	4,016	286,715	161,330	19,308	...	...	...	1,677	...	17	4,238	613	291	...	...	...
Ajmere	243,275	23,829	19,617	160	...	130	1,453	...	1,376	1,719	171	523	...	...	1	165	...	137
Baluchistan	2,881	...	16,601	...	...	...	115,498	...	20	22	...	57	...	...	...	445,456	...	20
Andamans	1,060,690	134,792	906	...	...	...	1,181,690	536,380	2,098	14,530	1,805	12	...	...	...	630	225	1
Berar	1,465,662	2,497,168	2,90,220	...	...	...	...	...	...	351	598	85	...	...	...	...	...	...
Madras(b)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (c)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Chapter IV of the Lower Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.

(b) The forests of the Madras Presidency yielded 36,646,432 cubic feet of timber and fuel, 35,724,919 bamboos, and R10,70,546 worth of minor produce. Dividing these figures by the 19,078 square miles of forests under the Forest Department, the average outturn per square mile was 572 cubic feet of timber and fuel; 1,789 bamboos, and R4 worth of minor produce.

(c). The forests of the Bombay Presidency yielded 71,425,761 cubic feet of timber and fuel, 5,152,247 bamboos, and R11,76,336 worth of minor produce. Dividing these figures by the 14,858 square miles of forest under the Forest Department, the average outturn per square mile was 4,863 cubic feet of timber and fuel, 346 bamboos, and 8179 worth of minor produce.

In the following statement the amounts of forest produce collected and removed by Government agency are contrasted with those removed by purchasers :—

PROVINCE.	TIMBER		FUEL		BAMBOOS		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	214,826	5,150,541	104,879	16,705,959	105,037	15,911,496	246	1,35,295
N.-W. P. and Oudh	529,438	1,923,729	2,115,042	2,685,942	194,125	11,951 804	19,551	1,73,431
Punjab	557,715	606,453	2,605,184	2,071,990	635,180	111,462	1,162	2,10,936
Central Provinces	176,063	891,701	1,394,026	10,259,340	88,753	13,209,482	13,871	4,53,040
Burma (Lower)	2,379,301	7,711,995	200	6,679,850	300	21,020,460	47	33,568
Burma (Upper)	372,643	11,748,140	1,500	3,724,720	4,200	19,835,289	887	2,49,176
Assam	73,544	2,370 629	11,739	646,751	1,643	3,112,049	784	61,402
Coorg	62,944	399 015	...	216,700	....	391,583	3,212	13,712
Ajmere	633	18,586	...	217,302	....	23,520	919	4,496
Baluchistan	718	1,876	7,807	438,731	....	...	442	1,084
Andamans	229,583	38,150	...	3,955	....	70,000	....	1,612
Total	4,597,807	30,760,844	6,240,377	43,498,240	1,029,539	85,727,375	41,121	13,67,742
Berar	...	459,930	...	983,466	....	2,494,588	...	2,84,391
Total Bengal Presidency	4,597,807	31,220,774	6,240,377	44,481,706	1,029,539	88,221,963	41,121	16,52,033
Madras	424,495	2,409,066	2,897,561	10,829,705	57,067	33,611,403	16,956	10,60,371
Bombay	1,203,797	6,564,905	9,126,282	35,452,394	5,505	7,628,412	62,449	6,54,574
GRAND TOTAL 1895-96	6,226,099	40,194,745	18,264,220	90,763,705	1,092,111	129,461,778	1,20,529	33,66,978
GRAND TOTAL 1894-95	5,694,297	39,985,689	28,056,761	69,791,064	1,616,237	132,196,511	1,88,654	30,25,197
Difference in 1895-96	+531,802	+209,056	−9,792,541	+20,972,641	−524,126	−2,734,733	−68,125	+3,41,781

These figures compare with those of the previous year as follows :—

Agency by which material was removed.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.
	C. ft.	C. ft.	C. ft	C. ft.	No.	No.	R	R
Government .	5,694,297	6,226,099	28,056,761	18,264,220	1,616,237	1,092,111	1,88,654	1,20,529
Purchasers .	39,935,689	40,194,745	69,791,064	90,763,705	132,196,511	129,461,778	32,62,473	33,66,978
Total .	45,679,986	46,420,844	97,847,825	109,027,925	133,812,748	130,553,889	34,51,127	34,87,507

This shows an increase of 740,800 cubic feet in the total amount of timber exported, most of which occurred under Government agency. The chief increased exports by Government agency were 193,000 cubic feet in Bengal, 390,000 cubic feet in Lower Burma, and 50,000 cubic feet in Madras, whilst the North-Western Provinces, the Punjab, and Bombay show decreases under this head of working. There was also an increase of 209,000 cubic feet in the amount of timber removed by purchasers. Most of the provinces show increased amounts under this head, of which the chief were 849,000 cubic feet in Bengal, 96,000 cubic feet in the Central Provinces and 1,221,000 cubic feet in Lower Burma. Against this has to be set a falling off of 2,317,000 cubic feet in the North-Western Provinces and Oudh. The number of bamboos exported fell off by 3,258,000. The value of minor forest produce removed from the forests rose from R16,00,000 in 1894-95 to nearly R24,00,000, being an increase of R8,00,000 or 50 per cent. Of this it is estimated that produce to the value of R2,99,500 was removed by right-holders or by free-grantees.

The actual amount realized by sale of minor forest produce was R16,05,000 as compared with R15,12,000 during the previous year. The increase occurred almost wholly in Madras, where there was a rise in the sales of minor forest produce of R1,84,000. The value of grazing dues realized was less than in the former year by R57,000.

The following table shows the estimated value of forest produce given free of royalty to the village right-holders and free-grantees :—

Timber.	Fuel.	Bamboos.	Minor Produce.	Grass and Grazing.	Total.
R	R	R	R	R	R
3,99,620	11,10,350	1,04,020	2,99,560	16,87,100	26,00,650

The following gives the detail by provinces :—

Bengal.—The total exports, as compared with the previous year, were as follows :—

	Timber.	Fuel.	Total.	Bamboos.	Grass and minor produce.
	C. ft.	C. ft.	C. ft.	No.	R
1895-96 . . .	5,557,480	32,684,959	38,242,439	20,700,568	3,30,931
1894-95 . . .	4,493,234	30,195,622	34,688,856	22,049,274	2,75,172
Difference in 1895-96 .	+1,064,246	+2,489,337	+3,553,583	—348,711	+55,759

There was thus a considerable increase in the outturn of both timber and fuel. The figures given include amounts given to right-holders, but the increase of 3 million cubic feet was due to improved demand; there was a large increase in the quantity of timber removed departmentally, 214,000 cubic feet, as against 20,000 cubic feet the previous year, being thus

exported, chiefly in the form of sleepers for the Rai Bareli-Benares Railway. There was also a substantial increase in the quantity of both timber and fuel removed by purchasers. The number of bamboos sold was much less, chiefly in the Chittagong Division, whilst the value of minor forest produce exported by purchasers rose from ₹1,29,000 in 1894-95 to ₹1,35,000.

North-Western Provinces and Oudh.—The Local Government in their resolution of the forest administration remarks :—

"The following statement summarizes the returns showing the outturn and gross yield of forest produce in the three Circles :—

Timber.

Circle.	1894-95.	1895-96.	Difference in 1895-96.
	C. ft.	C. ft.	C. ft.
Central	998,000	1,002,000	+4,000
Oudh	4,102,000	1,342,000	—2,760,000
School	805,000	706,000	—99,000
TOTAL	5,905,000	3,050,000	—2,855,000

Firewood.

Circle.	1894-95.	1895-96.	Difference in 1895-96.
	C. ft.	C. ft.	C. ft.
Central	4,018,000	3,397,000	—621,000
Oudh	4,921,000	2,951,000	—1,970,000
School	1,563,000	2,139,000	+276,000
TOTAL	10,802,000	8,487,000	—2,315,000

Minor produce.

Circle.	1894-95.	1895-96.	Difference in 1895-96.
	₹	₹	₹
Central	2,77,862	2,46,862	—31,000
Oudh	1,04,690	91,378	—12,712
School	70,314	64,178	—6,136
TOTAL	4,52,266	4,02,418	—49,848

This shows large decreases in timber in the Oudh and School Circles, and in fuel in the Oudh and Central Circles, whilst minor forest produce fell off in all three Circles.

Timber and firewood removed by purchasers was less by more than 4,000,000 cubic feet than in the previous year Under minor forest produce the chief decreases were owing to short sales of bamboos in the Central Circle, and to the restriction of grazing privileges in the Oudh Circle. The general decrease in the outturn was owing to depression in trade consequent on the prevailing unfavourable agricultural conditions.

Punjab.—The following statement shows the total amount of all produce removed from the forests as compared with the previous year :—

Agency by which produce was removed.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft.	No.	₹	₹
Government	557,715	2,605,184	635,180	191	971
Purchasers	506,453	2,071,990	111,462	2,09,521	8,412
Free-grantees	459,170	52,966	.....	4,741	2
Right-holders	399,386	24,921,887	.....	1,92,475	44,961
Total 1895-96	1,922,724	29,652,027	746,642	3,99,931	54,346
Total 1894-95	1,578,073	29,186,358	767,189	3,93,138	53,818
Difference in 1895-96	+344,651	+465,669	—20,547	+6,793	+528

From this it is observed that there was an increase in the total amount of timber exported, but this was almost entirely due to an increase in the amount removed by right-holders and free-grantees. There was a large decrease in the amount of timber removed by Government agency, chiefly in the Chamba Division. There was also a slight decrease in fuel removed departmentally, but a considerable increase (674,000 cubic feet) in fuel removed by purchasers, due to a greater demand for fuel for the Railway and the Chenab Canal works in the Chenab Division. Under other heads the outturn shows but little variation from that of the previous year.

Central Provinces.—The total outturn of timber and fuel compared with the previous year was—

Year.	Timber.		Fuel.	
	Northern Circle.	Southern Circle.	Northern Circle.	Southern Circle.
	C ft.	C. ft.	C. ft.	C. ft.
1894-95	483,155	541,164	3,643,150	8,392,470
1895-96	527,389	564,224	5,502,935	7,785,820
Difference in 1895-96	+44,234	+23,060	+1,859,785	—606,650

There was a slight increase in the total amount of timber extracted, but a large decrease in the outturn of fuel from the Southern Circle. Of the total outturn, it is estimated that no less than 23,849 cubic feet of timber and 1,635,389 cubic feet of fuel were removed by right-holders and free-grantees. Notwithstanding the fact that many forests were thrown open to free-grazing, there was a large decrease in the number of cattle grazing. This was owing to heavy mortality due to epidemics. In the Northern Circle sales of grass were some 6,000 tons more than in the previous year, and more than two-thirds of the fodder extracted was absorbed by free-grantees. In the Southern Circle, on the other hand, exports of grass fell off by 6,000 tons. Taking the two Circles together there was a decrease in bamboo sales, whilst minor forest produce, including grazing and bamboos, was sold to the value of R6,57,373, as against R6,09,000 in the previous year. The forests were thrown open to the people for the collection of edible fruits and roots, the quantity consumed being unknown.

Burma.—The following table exhibits the outturn of timber and fuel from Upper and Lower Burma with the agency of exploitation :—

Agency by which material was removed.	Timber.						Fuel.					
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.		
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government .	1,168,863	1,210,938	2,379,801	346,567	26,076	372,643	.....	200	200	1,500	.....	1,500
Purchasers .	4,270,594	3,451 401	7,721,995	8,569,573	3,178,567	11,738,140	5,453,018	1,226,832	6,679,850	3,286,336	438,394	3,724,720
Free-grantees .	139,226	8,737	147,963	173,160	108,312	281,472	.....	.....	.....	10,416	.....	10,416
Right-holders .	.....	86,014	86,014	39,152	36,090	75,242	.....	1,682	1,682	543,317	.....	543,317
Total, 1895-96 .	5,578,683	4,747,090	10,325,773	9,128,452	3,349,045	12,477,497	5,453,018	1,228,714	6,681,732	3,841,569	438,394	4,279,953
Total, 1894-95 .	5,002,806	3,557,492	8,560,300	9,730,449	2,275,009	12,005,458	5,833,365	1,681,028	7,517,393	3,252,001	382,647	3,634,613
Difference in 1895-96.	+575,875	+1,189,598	+1,765,473	—601,997	+1,074,036	+472,039	—380,347	—455,314	—835,661	+589,568	+55,737	+645,305

The total amount of timber of all kinds from Upper and Lower Burma was 53,764,955 cubic feet, of which 13,000,000 cubic feet was teak : 9,600,000 cubic feet of teak were extracted from the forests of Upper Burma and 3,400,000 from those of Lower Burma. This shows an increase of very nearly 800,000 cubic feet, as compared with the previous year. There was a considerable increase in the demand for pyinkado timber, which has been found excellent for railway sleepers.

The following table shows the number of bamboos, the value of grazing and other minor produce during the year, compared with the previous year :—

Agency by which material was removed.	Bamboos.						Grass and Grazing.						Minor Produce.					
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.		
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.
	No.	No.	No.	No.	No.	No.	R	R	R	R	R	R	R	R	R	R	R	R
Government . . .	300	...	300	4,200	...	4,200	...	...	...	...	...	...	...	47	47	8	879	887
Purchasers . . .	17,926,900	3,093,560	21,020,460	12,559,504	7,275,785	19,835,289	909	...	909	...	21	21	16,291	15,668	32,659	1,03,821	1,46,334	2,49,155
Free-grantees . . .	...	...	...	2,200	...	2,200	...	...	...	5,500	40	5,540	...	...	...	...	...	...
Right-holders . . .	57,900	82,689	140,589	585,050	...	585,050	*23,000	3,798	26,798	2,439	10,458	12,888	428	461	889	2,906	2,633	5,539
Total in 1895-96 . .	17,985,100	3,176,229	21,161,329 (a)	13,150,954	7,275,785	20,426,739 (b)	23,909	3,798	27,707	7,939	10,519	18,449	17,719	16,176	33,895	1,11,735	1,49,846	2,55,581
„ 1894-95 . .	15,033,100	3,411,783	18,444,883 (c)	13,892,504	8,852,342	22,744,846 (d)	32,939	3,851	36,790	†	†	†	16,712	22,868	39,580	1,44,030	97,561	2,41,591
Difference in 1895-96 .	+2,952,000	−235,554	+2,716,444	−741,550	−1,576,557	−2,318,107	−9,030	−53	−9,083	...	...	...	+407	−6,692	−6,285	−32,295	+46,285	+13,990

* Approximate.
† Figures not available.

(a) Value R53,338.
(c) „ R55,224.

(b) Value R46,348.
(d) „ R59,339.

There has therefore been an increase in the number of bamboos exported from Lower Burma of 2,700,000, and a decrease in Upper Burma of very nearly the same amount. An increase of ₹46,000 under minor forest produce took place in the Western Circle of Upper Burma, where ₹1,26,000 were realized for cutch, as against ₹82,000 in the previous year.

The total revenue from minor forest produce including bamboos and grazing amounted to ₹4,34,000.

Assam.—The following gives the gross outturn of timber and fuel as compared with that of the previous year:—

Agency by which material was removed.	1894-95.			1895-96.		
	Timber.	Fuel.	Total.	Timber.	Fuel.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government	66,972	20,682	87,654	73,544	11,739	85,283
Purchasers	2,529,326	943,244	3,472,570	2,370,629	646,751	3,017,380
Free-grantees	566, 94	2,133,692	2,699,786	454,309	9,186,564	9,640,873
TOTAL	3,162,392	3,097,618	6,260,010	2,898,482	9,845,054	12,743,536

According to this, the outturn was nearly doubled, but it will be seen that the increases occurred entirely under the head of free-grantees, and there is reason to suppose that the figures are here incorrect. The actual outturn by Government agency and by purchasers has varied but little, and shows a fall as compared with the operations of the previous year. It was again not found possible to dispose of the sâl timber available from the Goalpara forests.

Under sales of minor forest produce to purchasers there was a total falling-off of ₹5,000. India-rubber realized less by ₹4,800 and commutation fees by ₹1,500. Reeds and *agar* show an increase of ₹4,000.

Coorg.—The outturn of all forest produce was as follows compared with that of the previous year:—

	Timber.		Sandal-wood.		Fuel.		Bamboos.		Grass and Grazing.		Other minor produce, including cardamoms.	
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	₹	₹	₹	₹
Government	83,713	59,914	8,200	3,000	...	...	3,593	...	...	...	643	596
Purchasers, including confiscations.	153,851	170,789	...	...	213,375	216,700	415,323	391,583	...	2,616	351	867
Villagers and others	195,110	228,955	...	...	...	...	...	...	2,691	...	13,291	12,945
Free-grantees	5,714	7,281	...	...	...	...	5800	9,747	5,824	6,400	...	...
TOTAL	443,388	466,270	8,200	3,000	213,375	216,700	424,716	401,330	8,518	9,016	14,288	14,308

Timber removed by Government agency was thus less, and that removed by purchasers more than in 1894-95. Amounts given to right-holders show an increase of more than 34,000 cubic feet. The outturn of sandal-wood was less by 130 tons or 5,200 cubic feet. There was a slight decrease under bamboos, and a slight increase in the value of grazing. Rupees ₹2,800 were realized from the sale of cardamoms.

Ajmere.—The following table shows the outturn from reserved forests, and compares it with the previous year:—

Agency by which produce was removed.	Timber and Fuel.		Other Produce.		Difference in 1895-96.	
	1894-95.	1895-96.	1894-95.	1895-96.	Timber and Fuel.	Other produce.
	C. ft	C. ft.	₹	₹	C. ft.	₹
Government	...	533	...	919	+533	+919
Purchasers	233,160	234,337	4,501	4,387	+1,177	—114
Free-grantees	1,200	860	67	1,668	—340	+1,601
Right-holders	10,836	7,445	79,780	73,102	—3,391	—6,678
TOTAL	245,196	243,175	84,348	80,076	—2,021	—4,272

There was practically no export from the protected forest, but 100 cubic feet of timber and fuel were removed, and minor forest produce sold to the value of R130. The variations from the outturn of the previous year were unimportant.

Baluchistan.—The outturn of the past two years was as follows:—

Agency by which material was removed.	Timber.	Fuel.	Grass and Grazing.	Other produce.
	C. ft.	C. ft.	R	R
Government	718	7,807	33	409
Purchasers	1,876	438,731	944	140
Free-grantees	247	...	...	20
Right-holders	...	...	8,505	...
TOTAL 1895-96	2,841	446,538	9,482	569
TOTAL 1894-95	1,547	381,469	9,198	402
Increase in 1895-96	1,294	65,069	284	167

There was thus a slight rise in the amount of timber, most of which was exported by purchasers from Unclassed forests. Four hundred and thirty-eight thousand cubic feet of fuel were removed under permits from Unclassed forests and 3,200 cubic feet from State forests by Government agency. Agricultural operations at Shibu were practically abandoned. Five hundred and sixty maunds of hay, value R130, were made. The value of grazing by right-holders' cattle is estimated at R8,500.

Andamans.—The amounts of timber and fuel removed, as compared with 1894-95 were:—

Agency by which material was removed.	Timber.		Fuel.	
	1894-95.	1895-96.	1894-95.	1895-96.
	C. ft.	C. ft.	C. ft.	C. ft.
Government	260,965	229,583	...	...
District Officers	36,988	24,767	823,410	1,581,425
Purchasers	23,571	38,150	3,238	3,955
Free-grantees	37,500	37,500	330,000	330,000
TOTAL	359,024	330,000	1,156,648	1,915,380

The timber removed by Government agency was thus 31,000 cubic feet less than in the previous year. One thousand five hundred and seventy-four padouk trees were felled, yielding 2,655 logs. One hundred and thirty-six thousand cubic feet of padouk were received in sale depôts from the forest, 432 cubic feet of white *chuglam* were shipped to Calcutta and made into oars. There was an important increase in timber removed by purchasers of 14,500 cubic feet due to a brisker demand for *gurjan* planking in Calcutta, and a decrease of 48,000 in the number of bamboos sold, owing to the substitution of planking for bamboo tatties for houses. There was an increase of R345 in the value of minor forest produce sold.

Berar.—The outturn of the two years compares as follows:—

Material removed.	1894-95.	1895-96.	1895-96.	
			Increase.	Decrease.
Timber . . . . . c.ft.	478,936	459,930	.....	19,006
Fuel . . . . . c.ft.	1,026,275	983,486	.....	42,789
Bamboos . . . . . No. in 100's	20,159	24,946	4,787	.....
Grass . . . . . value R	37,500	36,799	.....	701
Grazing . . . . . value R	2,11,139	2,11,952	813	.....
Miscellaneous . Fruits, dye-stuffs, lac, wood and other sources, value R	25,627	35,540	9,913	.....
	129	216	87	.....
	5,620	4,687	.....	933
Gross revenue per square mile	112	119	7	.....
Net revenue per square mile	51	64	13	.....

There was a good demand for all products during the year, and as a rule sales at good prices were brisk. There were increased sales of timber in Ellichpur and Wun and of fuel in Amraoti, Buldana, and Wun. There was an increase in the number of bamboos exported, whilst the revenue from grass and grazing remained much the same. There was an important increase in the value of minor produce of nearly R10,000 due to increased sales of fruits, chiefly *hilda*. Produce was given away free to concessionnaires to the value of nearly 3 lakhs of rupees.

Madras.—The following shows the total yield under timber and other produce, as compared with that of the previous year:—

Agency by which material was removed.	Timber, including sandal wood.		Fuel.		Bamboos.		Minor produce, including grass and grazing fees.	
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.
Government	371,152	423,476	2,185,122	2,897,561	36,831	57,057	21,516	15,959
Purchasers	2,351,873	2,409,033	9,839,051	10,829,705	29,716,807	33,611,403	8,58,926	10,60,371
Free-grantees	33,633	70,678	551	12,071	39,597	57,349	563	2,099
Right-holders	.....	3,826	.....	45	.....	.....	.....	457
Total .	2,777,658	2,907,016	12,025,731	13,739,385	29,793,195	33,725,819	8,81,670	10,78,886
Increase in 1895-96 . . .	.....	129,358	.....	1,713,654	.....	3,932,624	.....	1,97,216
Percentage of increase over the previous year's total . .	.....	4·6	.....	14·2	.....	13·2	.....	22·6

There was thus an increase in the outturn of all kinds of forest produce under departmental operations. Timber shows an increase of 48,000 cubic feet, chiefly in Ganjam, Kistna, North and South Malabar, and Tinnevelly. There was also an increase in fuel collections in most of the divisions. The amount of sandal-wood shows a decrease of 338 cubic feet. An increase of 20,000 in the number of bamboos is noticeable, and of 12,000 maunds in the amount of minor forest produce collected. Under produce removed by purchasers, increases occur under all heads. The most noticeable item is the rise of R1,89,000 in the value of minor forest produce. This is due to a variety of causes, such as the leasing of the right to remove *Cassia Fistula* bark in Ganjam, better methods of auction in Vizagapatam, better prices for *tangedu* bark, date-tree revenue, rent of Neriya cardamom forests, and the sales of *vembadam* and *avaram* barks in South Coimbatore. The total value of minor forest produce removed by purchasers amounted to R10,62,000.

Bombay.—The following abstract from the Government Resolution reviewing the annual reports fully analyses the yield during the year:—

Circle.	Agency by which material was removed.	Material removed.					Average outturn per square mile of all Forests.		
		Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
		Cub. ft.	Cub. ft.	Cub. ft.	No.	R	Cub. ft.	No.	R
Northern Circle.	Government	101,455	142,448	243,903	1,212	...	...	...	...
	Purchasers	3,380,076	9,169,569	12,549,645	*1,735,154	9,462	...	...	...
	Free-grants	6,888	...	6,888	2,400	...	...	...	...
	Right-holders	...	559,978	559,978	...	...	...	...	...
	Total	3,488,419	9,871,995	13,360,414	1,738,766	9,462	†8,257	†1,074	†5‡
Central Circle	Government	243,746	2,057,295	2,301,041	...	5,406	...	...	...
	Purchasers	1,920,949	2,002,829	3,923,778	1,256,694	4,33,231	...	...	...
	Free-grants	24,748	...	24,748	...	...	...	...	...
	Right-holders	...	4,232,125	4,232,125	...	3,65,193	...	...	...
	Total	2,189,443	8,292,249	10,481,692	1,256,694	8,03,830	1,650‡	197‡	126‡
Southern Circle.	Government	1770.617	3,532,698	4,303,315	4,293	56,915	...	...	...
	Purchasers	§783,949	4,127,072	4,912,021	‖4.636,564	1,30,888	...	...	...
	Free-grants	64,255	5,719	69.974	11,639	...	...	...	...
	Right-holders	...	...	...	...	...	...	...	...
	Total	¶1,619,821	7,665,489	9,285,310	4,652,496	1,87,803	1,770	887	36
Sind Circle	Government	87,979	3,393,841	3,481,820	...	128	...	...	...
	Purchasers	§78,931	20,152,824	20,631,755	...	80,993	...	...	...
	Free-grants	8,305	9,584	17,889	...	100	...	...	...
	Right-holders	...	174,798	174,798	...	900	...	...	...
	Total	575,215	23,731,047	24,306,262	...	82,121	22,864	...	77
All Circles combined.	Government	1,203,797	9,126,282	10,330,079	5,505	62,449	...	...	...
	Purchasers	6,584,905	35,452,294	42,017,199	7,628,412	6,54,574	...	...	...
	Free-grants	104,196	15,303	119,499	14,039	100	...	...	...
	Right-holders	...	4,966,901	4,966,901	...	3,66,093	...	...	...
	Grand Total for 1895-96.	7,872,898	49.560,780	57,433,678	7,647,956	10,83,216	4,022	535	76
	Grand Total for 1894-95.	7,955,969	33,317,889	41,273,858	8,511,494	7,29,688	2,893	596	51
	Difference in 1895-96.	−83,071	+16,242,891	+16,159,820	−863,538	+3,53,528	+1,129	−61	+25

* Besides cart-loads, head-loads, etc., of bamboos.

† These averages are per square mile of the total forest area of the Northern Circle, excluding the leased forests of the Dangs.

‡ Besides khandis, cart-loads, etc., of sandal-wood.

§ Besides trees, pieces, etc., of sandal-wood.

‖ Besides 516 cart-loads of dry bamboos.

¶ Besides 14,092,063 cubic feet of timber and fuel, 504,291 bamboos, and minor produce of the value of R93,140 removed under privileges.

Receipts from grass and grazing were R5,84,774 as against R5,83,156 in the previous year.

CHAPTER IV.

Financial Results.

The gross revenue realized during the Financial year was R1,70,99,380 and the surplus was R77,66,770. This shows an increase of R3,10,500 in the gross revenue, and of R3,51,000 in the surplus as compared with the financial results of the year 1894-95. Both the gross revenue and the surplus are higher than the averages of the five preceding years, which were R1,62,46,000 and R73,70,500, respectively. The principal variations in revenue and surplus, as compared with the previous year, were—

	Revenue.	*Surplus.*
Bengal	+1,23,000	+54,000
North-Western Provinces and Oudh	—57 000	—63,000
Lower Burma	+1,40,000	+1,60,000
Upper Burma	+1,18,000	+82,000
Madras	+2,16.000	+1,57,000
Bombay	−2,13,000	−1,03,000

The following table gives the revenue and the surplus realized in each province compared with the average of the preceding five years, as well as the proportion of surplus to gross revenue, and the net revenue realized per square mile of forest :—

Province.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1895-96.	Average for preceding 5 years.	1895-96.	Average for preceding 5 years.	1895-96.	Average for preceding 5 years.		
	R	R	R	R	R	R	Per cent.	R
Imperial	2,690	5,191	...	...	77,720	79,661	...	...
Bengal	9,18,710	7,71,821	4,52,640	3,67,826	...	...	49·2	33·9
North-Western Provinces and Oudh.	16,01,340	16,78,008	6,58,480	7,36,953	...	...	41·1	168·7
Punjab	10,14,500	9,22,560	3,36,080	2,60,933	...	...	33·1	55·7
Central Provinces	9,96,940	11,89,464	44,600	3,29,640	...	...	4·4	2·3
Burma (Lower)	24,14,550	31,76,541	20,56,810	18,77,598	...	...	85·2	278·7
Burma (Upper)	22,81,280	19,01,311	17,05,420	14,65,603	...	...	74·7	313·5
Assam	4,25,030	3,93,868	1,38,890	1,22,732	...	...	32·7	9·0
Coorg	1,35,250	1,65,195	49,410	85,436	...	...	36·5	55·4
Ajmere	15,640	15,483	...	982	90	...	...	...
Baluchistan	14,930	18,478	...	...	26,840	25,563	...	...
Andamans	1,32,120	2,69,495	30,100	87,795	...	...	22·7	15·4
Forest School	4,310	1,946	...	...	63,640	50,343	...	...
Forest Surveys (Imperial)	510	640	...	...	29,440	25,581	...	...
Total	1,09,57,800	1,05,10,001	52,74,700	51,54,351	...	...	48·1	70·9
Berar	4,94,340	4,77,102	2,48,830	2,56,621	...	...	50·3	59·5
Total Bengal Presidency	1,14,52,140	1,09,87,103	55,23,530	54,10,972	...	...	48·2	70·3
Madras	21,10,570	17,81,603	6,64,960	4,51,473	...	...	31·5	34·9
Bombay	35,36,670	34,77,360	15,78,280	15,08,125	...	...	44·6	105·5
Grand Total	1,70,99,380	1,62,46,071	77,66,770	73,70,570	...	...	45·4	69·0

The proportion of expenditure to the gross revenue during the five years 1890-91 to 1894-95 remained at 54, the same as it was for the five years 1889-90 to 1893-94. The figures for the quinquennial periods since 1870-71 are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of expenditure to gross revenue.
	R	R	Per cent.
1870-71 to 1874-75	58,61,335	41,62,348	71
1875-76 to 1879-80	68,24,880	46,24,476	68
1880-81 to 1884-85	94,40,793	60,55,048	64
1885-86 to 1889-90	1,26,90,828	76,24,157	60
1890-91 to 1894-95	1,62,46,077	88,75,505	54

In estimating the value of forest-produce removed free of duty by right-holders or granted free by Government, it has been noticed that in former years no uniform method of calculation had been adopted, and that in the different provinces the value placed on the various articles of forest-produce differed so largely as to render the tables quite unreliable for purposes of comparison. It was found, for instance, that the value placed upon timber given to right-holders varied from Re. 1 per cubic foot to as much as 50 cubic feet for one rupee. Steps have been taken during the past year to ensure that the value of produce given away free should be calculated in all provinces in the same manner. It was considered that much of the produce thus removed was often of inferior quality, and that it frequently comes from localities so remote as to prevent its extraction at full market rates, and that it would be fair to value all such produce at half the average rates paid by purchasers, whilst for grazing the ordinary rates prevailing in the locality concerned should be entered. The value of produce given away free from Government forests, calculated in this manner in all the provinces, is shewn in the following table :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	R	R	R	R	R	R
Bengal	9,200	89,200	6,100	62,300	94,200	2,61,000
North-Western Provinces and Oudh.	60,000	54,000	1,000	10,000	74,000	1,99,000
Punjab	32,000	4,24,000	...	36,000	1,86,000	6,78,000
Central Provinces	2,000	9,000	5,000	21,000	98,000	1,35,000
Burma (Lower)	10,000	300	600	600	4,000	15,500
Burma Upper)	91,600	12,600	61,700	12,800	25,500	2,04,200
Assam	40,000	2,62,000	7,000	77,000	2,64,000	6,50,000
Coorg	1,000	...	70	...	6,400	7,470
Ajmere	270	50	...	40	38,000	38,360
Baluchistan	50	...	...	20	8,500	8,570
Andamans	1,600	40,000	50	400	...	42,050
Berar	70,600	54,000	20,000	13,000	1,39,000	2,96,600
Madras	60,000	76,000	2,400	46,600	1,42,000	3,26,400
Bombay	21,300	89,200	100	20,400	6,07,500	7,38,500
Total .	3,99,620	12,10,350	1,04,020	2,99,560	16,87,100	36,00,650

This does not include the free use of unclassed forest areas not under departmental control or which are controlled only as regards certain reserved trees or produce. It is for this reason that the figures for Burma, for instance, appear so low. Nor does it take into account the fact that in the Central Provinces, for instance, the royalty on forest produce and grazing has been considerably reduced from previous rates.

It is thus apparent that produce to the value of R36,00,650 was removed by right-holders or given under Government authority to free-grantees. This amounts to 21 per cent. of the gross revenue from all the forests. In Ajmere the value of produce given away free amounted to more than double

the gross revenue realized, in Assam it was half as much again, and in the Punjab it amounted to 66 per cent. These facts show the great value of the Government forest estates, apart from the revenue realized from them, in supplying the needs of the surrounding population.

The following statement shows the revenue and expenditure under the various heads, with the proportion of the gross receipts expended :—

				Amount. ₹	Proportion of Expenditure to gross Revenue.
Gross Receipts	(a) Wood			1,25,60,550	
	(b) Minor forest produce			15,27,530	
	(c) Forest stamps and commutation fees for forest produce			6,73,810	
	(d) Grazing			15,56,040	
	(e) Revenue from forests not managed by Government			3,43,040	
	(f) Miscellaneous			4,38,410	
	TOTAL REVENUE			1,70,99,380	
				Amount. ₹	Per cent.
Expenditure	A. Recurring.	(a) Administration.	(i) Superior Staff	21,40,690	12·52
			(ii) Exchange compensation allowance.	2,50,820	1·47
			(iii) Subordinate Staff (including Rangers, Foresters, and Guards.)	13,95,074	8·16
			(iv) Office Establishments (including Contingencies.)	7,56,790	4·42
		(b) Working	(1) Extraction	25,28,410	14·79
			(2) Roads and Buildings	4,30,820	2·52
			(3) Fire-protection	2,74,290	1·60
			(4) Cultural operations	3,68,070	2·16
			(5) Live-stock, stores, and plant.	1,99,640	1·17
			(6) Working-plans*	66,800	0·39
			(7) Rent for leased forests	1,57,620	0·92
			(8) Miscellaneous	74,970	0·44
		(c) Expenditure on realization of revenue from forests not managed by Government.		14,630	0·08
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School.)		90,006	0·53
		TOTAL		87,48,630	51·16
	B. Extraordinary.	(e) Forest Settlement		55,210	0·32
		(f) „ Surveys		4,22,280	2·47
		(g) „ Demarcation		1,06,490	0·62
		TOTAL		5,83,980	3·41
		GRAND TOTAL EXPENDITURE		93,32,610	54·57
		Net Revenue		77,66,770	45·43

* Exclusive of "B" charges.

Details of the financial results in the different provinces were as follows :—

Bengal.—For the Financial year the surplus revenue amounted to ₹4,52,640, as against ₹3,98,280 in the previous year. This is considerably more than has before been realized.

The following statement shows the difference in the receipts under the several main heads for the Forest year :—

Heads.	1895-96.	1894-95.	Difference in 1895-96.
	₹	₹	₹
Timber	4,18,369	3,53,928	+64,441
Fuel	2,96,322	2,52,454	+43,868
Bamboos	48,610	50,958	−2,348
Grazing and fodder	17,953	16,535	+1,418
Minor produce	1,10,858	1,08,919	+1,939
Other items	11,865	9,880	+1,985
Drift and confiscated produce	8,646	7,913	+733
Miscellaneous	23,057	25,082	−2,025
Total	9,35,680	8,25,669	+1,10,011

The revenue for the Forest year was thus ₹1,10,000 more than in the previous year. The charges also increased, due chiefly to the preparation of sleepers in the Kurseong, Singhbum, and Angul Divisions, purchase of additional tents, and increased works under communications and buildings.

North-Western Provinces and Oudh.—The following table extracted from the Government of India review exhibits the financial results of the Financial and Forest years :—

Year.	Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to Receipts.
		₹	₹	₹	Per cent.
Forest year (1st July to 30th June).	Central	5,67,242	3,20,670	2,46,572	43·4
	Oudh	4,98,648	3,01,272	1,97,376	39·5
	School	4,00,972	3,09,926	91,046	22·7
	Total in 1895-96	14,66,862	9,31,868	5,34,994	36·4
	„ „ 1894-95	16,64,743	9,69,211	6,95,532	41·8
	Decrease in 1895-96	1,97,881	37,343	1,60,538	5·4
Financial year (1st April to 31st March).	Central	6,30,147	3,38,088	2,92,059	46·3
	Oudh	5,47,977	2,98,532	2,49,445	45·5
	School	4,23,220	3,06,243	1,16,977	27·6
	Total in 1895-96	16,01,344	9,42,863	6,58,481	41·1
	„ „ 1894-95	16,58,250	9,36,310	7,21,940	43·5
	Difference in 1895-96	−56,906	+6,553	−63,459	−2·4
	Average for the 5 years ending 1894-95.	16,78,008	9,41,055	7,36,953	43·9

The Government of India make the following remarks :—

"There was thus a falling off in the receipts, as compared with the previous Financial year, of R56,906 and in the surplus of R63,459. The proportion of surplus to gross receipts fell to 41·1, or 2·8 per cent. less than the average of the past five years. The various causes of this falling off are fully explained, the chief being balances due for fuel by the Commissariat, the gradual exhaustion of the surplus stocks in the Oudh Circle and general depression in trade owing to bad harvests and scarcity. At the same time it must not be overlooked that produce to the estimated value of R1,99,000, of which R74,000 represent grazing dues foregone, has been given away free to right-holders or grantees. The total revenue realized being R16,01,344, it follows that 12 per cent. of the gross outturn has been granted free of charge.

The Government of India have no doubt that the main cause of the decreased receipts is depression in trade, owing to the prevailing unsatisfactory agricultural conditions; and until these conditions have passed away and more prosperous times prevail, they scarcely expect forest revenue in the North-Western Provinces and Oudh to regain the level of former years. They see, however, no reason to doubt that, so soon as the country recovers from the effects of the prevailing scarcity, the forest revenue will again rise to, if not surpass, the figures formerly realized."

Punjab.—The following statement gives the financial results for the Forest and Financial years, as compared with the year before :—

Period.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	
Forest year . . . . { 1895-96 .	10,18,087	6,81,385	3,36,702	33·1
{ 1894-95 .	10,81,224	7,37,392	3,43,832	31·8
Difference in 1895-96	− 63,137	−56,007	−7,130	+1·3
Financial year . . . . { 1895-96 .	10,14,494	6,78,416	3,36,078	33·1
{ 1894-95 .	10,32,4 0	7,22,120	3,10,310	30·5
Difference in 1895-96	−17,936	−43.704	+25,768	+ 2·6
Average for the five Financial years ending 1894-95	9,22,560	6,61,627	2,60,933	28·2

For the Financial year the surplus was thus R25,768 more than in 1894-95, but the surplus for the Forest year was less by R7,130. This was chiefly due to a decrease of over a lakh from timber prepared by departmental agency, owing to the dullness of the timber market in Jhelum, and smaller receipts of timber on the Chenáb and Rávi. There was also a decrease of R18,000 in the value of fuel collected by departmental agency, but an increase of R38,000 from fuel removed by purchasers. It is estimated that produce to the value of R6,77,800 was given away free to right-holders and free grantees.

Central Provinces.—The following remarks by the Chief Commissioner in his Resolution reviewing the annual reports may usefully be repeated :—

"The financial results of the year, as has been the case for two or three years past, are unsatisfactory. The bad years, the reduction of sales, the competition of private forests, the excision of land for ryotwari cultivation, the regulation of fellings and the free grants are all cited with truth as causes for the decline in receipts. They have been accompanied by an increase in capital cost on such work as surveys, working-plans, demarcation, buildings, and roads. Consequently no just criticism of the forest administration can be based on a mere superficial scrutiny of the financial returns of the last few years.

The causes for decrease of receipts are in great measure temporary, while most of the increased expenditure has to be incurred once and for all.

"The financial results of the year are shown in the following table :—

	1894-95.	1895-96.
Receipts.	R	R
Southern Circle	5,39,212	4,92,118
Northern „	5,04,094	4,28,244
TOTAL .	10,43,306	9,20,362
Expenditure.		
Southern Circle	4,77,713	4,72,726
Northern „	4,01,326	3,86,401
TOTAL .	8,79,039	8,59,127
Surplus.		
Southern Circle	61,499	19,392
Northern „	1,02,768	41,843
TOTAL .	1,64,267	61,235

The surplus has now fallen to 6·6 per cent. of the gross earnings. But the real results of the year may be more correctly ascertained if to the receipts be added the value of free grants, and if amounts spent on capital account be deducted from the expenditure.

The value of the free grants is estimated to have been—

	R
Northern Circle	75,129
Southern „	9,950
	85,079

and deductions on account of capital expenditure may be calculated as follows :—

	R
Demarcation (new work)	2,051
Surveys	68,150
Working-Plans	13,501
Roads and Buildings (new work)	18,538
TOTAL	1,02,240

The corrected figures of receipts, expenditure and surplus will then stand—

	R
Receipts	10,05,442
Expenditure	7,56,887
Surplus	2,48,555

These figures of true receipts and true working expenses are more encouraging than those showing the cash income and expenditure of the year."

Burma.—The following table, abstracted from the Government of India's Resolution reviewing the annual reports, exhibits the results of the Financial and Forest years, compared with the year 1894-95. It will be seen that the surplus for the Financial year exceeded that of last year by more than 3 lakhs of rupees, and was nearly 5 lakhs above the average of the last five years :—

	Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year.	Pegu	15,90,475	6,44,485	9,45,990	59·4
	Tenasserim	17,22,512	7,03,326	10,19,186	59·1
	Total Lower Burma	33,12,987	13,47,811	19,65,176	59·3
	Eastern	15,69,283	3,63,693	12,05,590	76·8
	Western	7,08,166	2,01,634	5,06,472	71·5
	Total Upper Burma	22,77,389	5,65,327	17,12,062	75·1
	Grand Total Burma, 1895-96	55,90,376	19,13,138	36,77,238	65·7
	„ „ „ 1894-95	55,95,886	18,64,501	37,31,385	66·6
	Difference in 1895-96	—5,510	+48,637	—54,147	—0·9
Financial year.	Pegu	16,38,689	6,15,403	10,23,286	62·4
	Tenasserim	17,75,851	6,83,675	10,92,176	61·5
	Total Lower Burma	34,14,540	12,99,078	21,15,462	61·9
	Eastern	15,75,065	3,67,816	12,07,269	76·6
	Western	7,06,198	2,08,047	4,98,151	75·4
	Total Upper Burma	22,81,283	5,75,863	17,05,420	74·7
	Grand Total Burma, 1895-96	56,95,823	18,74,941	38,20,882	67·0
	„ „ „ 1894-95	53,26,780	19,17,990	35,18,790	64·7
	Difference in 1895-96	+2,59,043	—43,049	+3,02,092	+2·3
	Average for the five years ending 1894-95. Lower Burma	31,76,541	12,98,942	18,77,598	59·0
	Average for the five years ending 1894-95. Upper Burma	19,01,311	4,35,708	14,65,602	77·0
	Average for the five years ending 1894-95. Total Burma	50,77,852	17,34,651	33,43,201	65·8

Taking the Forest year, in Lower Burma there was a decrease in the value of timber exported by Government agency of R1,39,000, but on the other hand the value of timber removed by purchasers rose by R1,38,000. The total revenue was R33,12,987, as against R33,77,899 in the previous year.

In Upper Burma the value of timber removed by Government agency rose by R15,600 and that of timber removed by purchasers by R12,441.

Assam.—The following table shows the receipts under the several heads of revenue during the Forest year as compared with the two previous years:—

Budget Heads.	1893-94.	1894-95.	1895-96.	Difference in 1895-96. compared with 1894-95.
	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	17,990	15,162	7,552	—7,610
II.—Timber and other produce removed from the forests by consumers and purchasers.	3,78,840	3,48,357	3,10,547	—37,810
III.—Drift and wrif wood and confiscated forest produce.	14,731	8,014	5,788	—2,226
IV.—Revenue from forests not managed by Government.	39,124	30,977	32,887	+1,910
V.—Miscellaneous	42,126	42,196	47,708	+5,512
TOTAL .	4,92,811	4,44,706	4,04,482	—40,224

The decrease of R40,000 in the receipts is more than accounted for by a decrease of R56,900 in the receipts for timber on waste-land grants for special cultivation. Expenditure during the Forest year was R7,600 more than during 1894-95 and the surplus fell by nearly R48,000. For the Financial year, however, the surplus of R1,38,896, although R24,000 less than in the previous year, was some R16,000 more than the average of the past five years.

Coorg.—The following statement gives the financial results of the Forest year:—

Period.		Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Receipts.
		R	R	R	Per cent.
Forest year	1895-96	1,45,120	73,624	71,496	49
	1894-95	1,44,170	93,842	50,328	35
	Difference in 1895-96 . .	+950	—20,218	+21,168	+14
Financial year	1895-96	1,35,245	85,835	49,410	36
	1894-95	1,53,050	86,140	66,910	43
	Decrease in 1895-96 . .	17,805	305	17,500	7
	Average for the five years ending 1894-95.	1,65,195	79,759	85,436	52

During the Financial year therefore the surplus was less by R17,500 than in the previous year; but, on the other hand, the fact that during the Forest year an increased surplus of R21,000 was realized augurs well for the Financial year 1896-97. The charges for the Forest year also show a substantial decrease as compared with those of the year before, and this is the reason of the increased surplus, the actual revenue realized being R950 only more than in 1894-95.

Ajmere.—The results of the year's working were—receipts ₹15,380, expenditure ₹16,467, leaving a deficit of ₹1,087. The following table gives the results for the past seven years :—

	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.
	₹	₹	₹	₹	₹	₹	₹
Receipts . . .	11,592	15,266	19,799	16 909	14,343	12,887	15,380
Expenditure . . .	12,701	12,720	13,986	18,771	15,696	14,794	16,467
Surplus or Deficit . .	—1,109	+2,546	+5,813	—1,862	—1,353	—1,907	—1,087

The receipts vary considerably from year to year. They are highest in years of scarcity when there is a larger demand for grazing and fodder.

The expenditure was higher than usual, owing to the distribution of two-thirds of the net profits of the last five years amongst the proprietors of land taken up for forest, and to this being charged as "*Forest*" expenditure.

Baluchistan.—The following table shows the financial results of the Forest year, as compared with the two years preceding :—

Year.	Revenue.	Expenditure.	Deficit.
	₹	₹	₹
1893-94	21,395	63,829	42,434
1894-95	15,191	44,548	29,357
1895-96	14,751	36,382	21,631

The Agent to the Governor General in his review of the report remarks—

"The large decrease in revenue in 1894-95, compared with that for 1893-94, was attributed chiefly to a scanty fall of rain and snow and to the demand for firewood being smaller in consequence. The decrease shown for 1895-96, as compared with 1893-94, would appear also to be due partly to the same cause. Compared, however, with the figures for 1894-95, which include a sum of ₹360 realized by the sale of Government bullocks, the revenue for 1895-96 shows a favourable increase of ₹361. Adding to this the considerable decrease in expenditure of ₹27,447 compared with 1893-94, and of ₹8,166 compared with 1894-95, the financial result of the working of the Forest Department in Baluchistan for the year 1895-96 are on the whole satisfactory."

Andamans.—The financial results of the year, compared with the previous two years were as follows :—

Year.		Revenue.	Expenditure.	Surplus or Deficit.
		₹	₹	₹
Forest year .	1893-94	3,37,460	2,44,497	+ 92,963
	1894-95	1,04,328	1,17,066	— 12,743
	1895-96	3,82,174	3,31,640	+ 50,534
Financial year .	1893-94	4,41,788	2,44,547	+ 1,97,241
	1894-95	1,14,535	1,22,776	— 8,241
	1895-96	1,32,120	1,02,021	+ 30,099

The increase is due to the disposal of the cargoes in London, increased requirements of the Madras Gun Carriage Factory, and to a greater demand for padouk amongst trading firms in Calcutta. Prices realized for padouk in London continued to be low, varying from 2 shillings to 2*s.* 3*d.* a cubic foot, as against 3 shillings to 4*s.* 6*d.* realized in 1893-94.

Expenditure was less by ₹20,000, due chiefly to a short supply of labour, causing a decrease in the amount of timber brought to depôt and a curtailment in works of improvement.

Berar.—The following table compares the financial results of the Forest and Financial year with those of the previous year :—

	Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	1895-96	4,95,899	2,27,862	2,68,037	54
	1894-95	4,66,014	2,49,188	2,16,826	46
	Difference in 1895-96	+ 29,885	— 21,326	+51,211	+ 8
Financial year	1895-96	4,94,339	2,44,003	2,50,336	50
	1894-95	4,73,400	2,51,640	2,21,760	46
	Difference in 1895-96	+ 20,939	— 7,637	+ 28,576	+ 4
	Average for the five years ending 1894-95.	4,77,102	2,20,481	2,56,621	54

The Conservator in his annual report remarks—

" In connection with forest finance in Berar, the following figures are interesting :—

Financial Years.	Average Receipts.	Average Charges.		Surplus.
		(i) Capital.	(ii) Ordinary.	
	R	R	R	R
1881-82 to 1885-86	2,88,460	13,340	1,40,870	1,34,250
1886-87 to 1890-91	4,13,710	12,630	1,61,180	2,39,900
1891-92 to 1895-96	4,78,670	24,800	2,10,860	2,43,020

These figures show that while the forest estate has been steadily improved by capital expenditure on new roads, surveys and new forest areas, etc., and the ordinary expenditure has included large sums spent on the protection from fire and grazing of constantly increasing areas, the financial position has steadily improved without taking the capital value of the forests into consideration."

There is no doubt that the financial position of the department has steadily improved and the results obtained during the year 1895-96 are very satisfactory. They are due in great measure to the general prosperity of Berar, resulting from the splendid cotton crop of 1895.

Madras.—The financial results are exhibited in the following table :—

Year.	Circle.	Receipts.	Charges.	Surplus or Deficit.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	Northern	7,23,859	3,83,877	+3,39,982	47
	Central	9,39,733	5,60,995	+3,78,738	40
	Southern	5,04,038	5,24,116	—20,078	...
	Total in 1895-96	21,67,630	14,68,988	+6,98,642	32
	„ „ 1894-95	19,77,182	14,54,298	+5,22,884	26
	Increase in 1895-96	1,90,448	14,690	1,75,756	6
Financial year	Northern	6,68,061	3,77,645	+2,90,416	43
	Central	9,21,402	5,41,857	+3,79,545	41
	Southern	5,21,105	5,26,104	—4,999	...
	Total in 1895-96	21,10,568	14,45,606	+6,64,962	31
	„ „ 1894-95	18,94,029	13,86,345	+5,07,684	27
	Increase in 1895-96	2,16,539	59,261	1,57,278	4
	Average for the five years ending 1894-95.	17,81,698	13,30,135	4,51,473	25

Extraordinary expenditure amounted to about R1,20,000; but against this may be placed extraordinary revenue realized from timber on land taken up for cultivation. There was thus during the Financial year a very substantial increase in the gross revenue realized and in the surplus which was R2,13,000 in excess of the average for the five years ending 1894-95. The increase is mainly due to higher prices realized for the leases of *Cassia auriculata* (tangedu) bark, increased supplies of firewood to the Madras Railway in Salem, increased sales of timber and fuel in the Nilgiris, improved system of collection of grazing dues, revenue from leases to lop date trees, and the crediting to "*Forests*" of revenue derived from timber on land given over for cultivation. The variation in expenditure compared with the previous year was but small.

Bombay.—The following remarks by the Government of Bombay review the financial position :—

"The financial results of the year under review and the preceding year are compared in the following statement :—

Circle.	Receipts.		Expenditure.		Net Revenue.		Increase or decrease in net revenue in 1895-96.
	1894-95.	1895-96.	1894-95.	1895-96.	1894-95.	1895-96.	
	R	R	R	R	R	R	R
Northern	7,38,680	7,83,283	2,75,932	2,97,437	4,62,748	4,85,846	+ 23,098
Central	7,84,401	7,59,605	5,42,471	5,27,207	2,41,930	2,32,398	− 9,532
Southern	15,25,028	14,98,084	8,16,680	8,54,353	7,09,348	6,43,731	− 65,617
Sind	6,79,823	4,65,745	4,17,757	2,34,807	2,62,066	2,30,938	− 31,128
Total .	37,27,932	35,06,717	20,51,840	19,13,804	16,76,092	15,92,913	− 83,179

It will be seen that the net revenue of the year was less by R83,179 than that of the previous year. The increase in the Northern Circle was due to receipts on account of the sale of trees in occupied and waste lands in the Panch Mahals, and but for the cost of special working-plans, planting and fire-protection operations, of a new Conservatorship and of an additional Cooper's Hill recruit, the surplus would have been still larger. In the Central Circle the decrease in net revenue was due to the low prices obtained for forest-produce. In the Southern Circle the falling off was due partly to smaller sales at the Kodikal depôt, partly to delay on the part of the Southern Maratha Railway Company in paying for fuel supplied to them, and partly to the cost of supplying the fuel. In the Sindh Circle the substitution of the coupe contract system for the former departmental arrangements caused a decrease both in revenue and in expenditure, as the contract year does not coincide with the year for which the report is submitted. Special expenditure on demarcation was also incurred, and the special recoveries on account of outstandings which had swelled the receipts of the preceding year did not recur."

CHAPTER V.

I.—Establishments.

Of the nineteen permanent Conservators, three were on furlough. One hundred and fifty-one Deputy and Assistant Conservators were on duty throughout the year, sixteen officers of the Imperial Controlling Staff being on leave. Mr. McDonell remained on foreign service in charge of the Kashmir forests, and Mr. Slade continued to be in charge of the Siam Forest Department, which has since the close of the year been further strengthened by the deputation of three more officers from the forest staff of Burma. Eleven young officers trained at Cooper's Hill came out to India towards the close of 1895. Under the scheme for the development of the Provincial Service, which formed a part of the reorganization of the Forest Service sanctioned in 1891, it is intended to gradually transfer 43 appointments from the Imperial to the Provincial Service. Up to the close of the year 1895-96 two appointments only had been so transferred. However, at the time of writing this review, the total number of posts transferred amounts to 12; and as the present scale of recruitment from England is fixed for some years at 6 officers per annum, it will probably be found possible to complete the proposed numerical separation of the two services within the next 8 or 10 years, though it will not be for some years after that the posts actually to be transferred will be absorbed.

Of the eighty-seven posts originally sanctioned for the Provincial Service, eighty were filled by permanent occupants during the year. During the year sanction was received to the reorganization of the subordinate staff in Burma to the great satisfaction of all concerned. Under this scheme, which came into force on the 1st March 1896, the greater portion of the hitherto temporary establishment became permanent, and it was found possible to man the staff in a more satisfactory manner throughout the province. The arrangements made involve an increase in the cost of the permanent establishment of R78,000, while the expenditure on temporary establishment is less by R39,000.

The insufficiency of the subordinate establishment elsewhere is a fact which has been recognized for some years past, and the fact that, in some cases, loss of revenue, and in others harm to the forests resulted therefrom, was again brought prominently forward in the reports for the year. Happily the sanction of the Government of India and the Secretary of State has since been received to the proposed reorganization of the forest staff. This scheme had been under consideration for the past 10 years; and its adoption will, it is believed, result ultimately in considerable increases of revenue, and in the present by improving the prospects of the staff, will permit the employment of more and better-trained officials to the benefit of the forest estates of which they will be placed in charge.

Conservators on the whole report favourably on the work of the subordinate staff, but in the Central Provinces, Bombay, and Madras the reports are unfavourable, and the conduct of the staff leaves much to be desired. In the Northern Circle of the Central Provinces, for example, no less than two-thirds of the staff of foresters were punished, and the discipline both here and in the Southern Circle requires the careful attention of the Conservators. In the Bengal Presidency some serious cases of defalcation occurred, no less than three head clerks of Divisional Officers being implicated. These cases seem to indicate

that such officials are peculiarly exposed to temptation in connection with the large sums of money which pass through their hands, and Local Governments have accordingly been addressed by the Government of India, with the view of introducing possible improvements in the control of such transactions, and in the departmental system of accounts.

II.—Experiments.

The following are the more noteworthy experiments connected with the introduction of exotics and the changing of the natural habitat or manners of growth of indigenous trees :—

The plantations of *Robinia pseudo-acacia* in and around Simla continue to thrive, but efforts to raise this plant at elevations below 4,000 feet have hitherto not been very successful in this district, though the species is doing well in Dehra Dun, Lansdowne and Naini Tal. In Peshawar and Kohat, also, it has succeeded, and some plants have also been raised in the Hoshiarpur District, which it is intended to use in planting out in the "*chos*." The result of this experiment will be watched with great interest. In Bengal the sowings of this species have not been successful. Experiments made in this province with the "*utis*" (*Alnus nepalensis*) on landslips also proved a failure. The failure must probably be attributed to some difference in the surface soil, for the experiments were conducted within the natural habitat of the species concerned.

The experiment of propagating "*khair*" and "*haldu*" in accordance with the provisions of the Kumaun working-plan was unsuccessful, and after a third trial and failure the Forest officers of the Central Circle have decided to abandon the project.

An attempt was made to extend the resin works, which have proved entirely successful in the hill forests of the Jaunsar Division, to the "*chir*" trees grown in the Saharanpur Division. The amount of resin yielded by these trees growing somewhat out of their natural habitat was found to be so small that the attempt was abandoned. The comparative absence of resin in trees of the same species which produce an abundance at higher elevations close by is a fact worthy of notice. Further experiments will be carried out in regard to this and will also be undertaken in order to ascertain the comparative yield of the rubber-trees in different localities. Without such precautions large sums of money may be frittered away.

The Charduar rubber plantation in Assam was enlarged by a few acres only. It covers an area of 2,165 acres, and has been a complete success so far as the propagation of the rubber-tree (*Ficus elastica*) is concerned.

The best method of propagation has been found to be by raising plants from seed in nurseries, where they are transplanted two or three times and kept until they are some 12 feet high. They are then planted out in mounds and are high enough to be out of the reach of deer, which destroy small young seedlings. Rubber-trees may also be raised from cuttings, but so far the information at present available tends to show that the plants thus raised are not so hardy, and that they do not throw down aerial roots nearly so quickly as the plants raised from seed, and that consequently they take much longer to develop and at any given age yield less rubber.

Experiments have also been made of planting out the young rubber in the forks of trees, a method which has the advantage of at once placing them out of the reach of their great enemies, elephants and deer, and of giving them the

necessary light overhead without the necessity of making extensive and expensive clearances in the evergreen forests. These experiments have usually failed, principally, it is thought, because too often the plants were placed in the forks of sound trees. In many cases sufficient nourishment was provided to keep them alive, but no inducement was offered to establish a connection with the soil. It is a matter of regret that the experiment was abandoned and that the forest was cleared for a regular extension of the plantation, instead of trying to induce the plants established in the forks of trees to connect themselves with the soil. Further experiments seem desirable in this direction. The young plants should, however, be placed in unsound or girdled trees, or some device, such as hollow bamboos filled with vegetable mould should be arranged, so as to enable the rubber roots to develop and reach the ground. Once they have done this their subsequent satisfactory growth is assured, and it is evident that this method, merely necessitating the killing out of a few practically valueless trees, must be infinitely cheaper than opening out belts in the evergreen forests and the clearing thereof for several years, the building of mounds, and the raising of large plants. It has been estimated that, with the experience gained from past experiments and failures, it is possible to plant up an acre with rubber raised from seed at a cost not exceeding R40 per acre; and this may be much less if grass land is operated upon.

Fifty rubber-trees, planted out in 1874, had in 1895, at the age of 21 years, an average height of 78 feet and an average girth of 18 feet at the base. Trees 15 years old were found to have an average height of 64 feet with a girth of 9 feet. It remains, however, to be proved whether the plantation will prove a financial success or not.

Some attempts to propagate the *Ficus elastica* in North Malabar have been mostly unsuccessful, but the *Ceara* rubber (*Manihot Glaziovii*), a tree introduced from South America, is doing well in both North and South Malabar, and is reproducing itself naturally from seed. Some rubber taken from these trees was valued in London at two shillings a pound, that is at, say, R125 a maund. The rubber from the *Ficus elastica* from the Charduar plantation has been valued in Calcutta at R110 a maund. The successful propagation of the rubber-yielding trees has become a subject of the very greatest interest and importance. At the same time that the consumption of the article has increased by leaps and bounds—for bicycle and carriage wheels and for the needs of electrical science, for example—the caoutchouc-yielding forests are gradually being worked out in all countries where they are known to exist. The quantity of rubber exported from Assam has fallen from 7,200 maunds in 1887-88 to 3,200 maunds in 1895-96 in spite of a constant rise in price. It has been found impossible to prevent illicit tapping of the naturally grown rubber-trees, scattered as they are over miles of almost impenetrable forest, with probably not more than 20 rubber-trees to the square mile. This probably applies with equal force to all rubber-yielding forests in the world, and the only prospect of success seems therefore to be by establishing plantations where the trees can be efficiently protected and the unlawful extraction of the rubber be guarded against.

Steps have been successfully taken to extend lac cultivation in the Central Provinces and in Berar, but the exceptionally dry hot season was against the experiment. It may be noticed that an experiment in Jeypore of propagating the lac insect on *chilla* trees was brought to an untimely end through a protest from the Shikar officers of the State, who represented to the Durbar that the insect would make the trees leafless, and obtained an order for the breaking off of all the insect-bearing twigs, in order to provide shelter for game.

In Madras experiments with a number of exotics continued to be made during the year. Insects, and late and insufficient rains have caused damage, but the result is reported to have been on the whole satisfactory. *Sabai* grass, useful for paper-making, was planted in the Sátpudás and did fairly well. *Pinus Khasya* sown in the Poona Division all died.

Sample plots for the purpose of ascertaining the rate of growth of the sâl tree, as well as the influence on the growth of thinnings, were kept up in the North-Western Provinces. Careful observations have now been kept up in some of these plots for 17 years, and the results, which are most interesting and instructive, have been utilised in framing the working-plans in force in these provinces. Such plots, in which the trees are numbered and periodically measured, may with advantage be started wherever it is desired to ascertain the rate of growth of species which do not form distinct annual rings. Unfortunately, in the plots hitherto kept up, only girth measurements have been taken—a fact which renders it impossible to ascertain the actual volumetric increase during any given time. It is advisable that in all future sample plots this omission should be rectified and that the heights of the trees observed should be taken accurately as well as the girths.

Attention was drawn to the value of the fibre of the *rhea* plant (*Bhömeria nivea*), and some experimental plantings were made in the Tharrawaddy garden and in Mandalay. The young plants are reported to be doing well.

The importance of preparing in a practical manner extracts suitable for tanning has for some years been recognized. Our Indian forests grow several species which contain valuable tanning agents. But in the majority of cases their distance from the markets and consequent cost of extraction have hitherto prevented their use commercially. An interesting paper on this subject was published by Mr. E. E. Fernandez, and a rise in the general demand during the year for suitable tannin extracts caused greater attention to be paid to the question. Consequently a series of experiments has been arranged with the object of ascertaining from what materials the most valuable extracts can be prepared, which will, it is hoped, eventually result in the opening out of an important industry. The attention of all Forest officers is directed to this interesting subject.

III.—Exports of Forest-produce.

The following tables gives the amounts and value of various articles exported from India during the year :—

Articles of Forest-produce.	Quantity in tons of 20 cwt.; in the case of Teak, cubic tons.		Valuation at port of shipment in 1895-96.	
	Average of five years, 1889-91 to 1894-95.	In 1895-96.	Total.	Per ton.
			R	R
Caoutchouc	473	352	9,91,356	2,816
Lac—				
Button	1,375	1,048	36,20,890	1,863
Shell	5,553	8,134	1,46,31,466	1,798
Stick and other kinds	76	58	75,654	1,304
Lac-dye	9	1	1,705	2,273
Sandal-wood, ebony and other ornamental woods	Information	not available	9,37,759	...
Cutch and gambier	9,250	9,186	37,96,106	413
Myrabolams	41,672	59,601	40,45,598	81
Teak	59,361	63,516	67,09,744	105
Cardamoms	123	63	1,95,744	3,107
Total in 1895-96	...	133,258	3,50,15,022	...
„ 1894-95	...	134,028	2,93,98,186	...
Difference in 1895-96	...	— 770	+56,16,836	...

There was thus a total rise in the value of exports of ₹56,16,000, the increase occurring chiefly under lac, sandalwood, catch, and teak. Under teak alone the value of wood exported exceeded that of the previous year by ₹10,00,000. In connection with the teak trade the following abstract from notes by the Bombay-Burma Trading Corporation, Limited, are interesting:—

"The teak market in Europe has been one of considerable activity during the year under review owing to increased demand, chiefly for Naval purposes; and consequent on the scarcity of Burma wood, prices have been higher than for many years back, the closing rates being £12-5 to £12-10 for cargo timber (squares), and £10-10 to £11-10 for Europe planks of the usual market specification.

It is estimated that about 75,000 tons have gone into consumption in Europe during the period under review, against an average of only about 55,000 tons in the immediately preceding years, the increased requirements of the Admiralty, Naval construction for the Home and Foreign Governments, and renewed demand for Railway purposes, accounting practically for the whole of the increase, the Continental demand having been almost stationary, and there having been no expansions of the trade in other directions.

Siam has again taken a large share in the Home trade. The arrivals in Bangkok during the last floating season aggregated 65,000 logs against about 72,000 in the preceding year, but an ever-increasing portion of the supplies is finding its way into the Home markets, and fully one-third of the requirements of the Western countries is now being met by Siam teak, the timber realizing within a fraction the rates ruling for Burma wood."

It will be observed that, although there was an increase in the total value of articles exported, there was a considerable fall in rubber (₹1,60,000), in lac-dye (₹24,000), myrabolams (₹6,94,000), and cardamoms (₹1,00,000).

It is interesting to notice that in the year 1885-86 the total value of articles of forest-produce exported from India was placed at ₹1,71,00,000 against ₹3,5[illegible],00,000 during 1895-96. During the past ten years therefore exports have more than doubled in value—a fact which shows how rapidly the resources of the forests of the Indian Empire are being developed.

IV.—Technical Education and Recruitment.

There is little of additional importance to notice under the head of technical education. The officers for the Imperial Service continue to be trained in England at Cooper's Hill College. Six young men were selected by competitive examination to undergo the Cooper's Hill course, whilst 11 officers who had been successful at the final examination joined their appointments in India. At the Dehra Dun Forest School a change in the teaching staff is to be noticed. The School remained under the directorship of Mr. J. S. Gamble, M.A., except for a short period when he went on privilege leave, during which time Mr. A. Smythies officiated for him. At the close of the year Mr. F. Gleadow, Professor of Forestry at the Poona College of Science, was appointed Deputy Director, *vice* Mr. Smythies, who went to Burma as Officiating Conservator. The other members of the School staff were Mr. A. F. Gradon, Instructor, Mr. C. G. Rogers, Mr. B. B. Osmaston, and Babu Upendro Nath Kanjilal. The School staff was also assisted by the Assistant Agricultural Chemist, the Deputy Superintendent of the Indian Museum, the Superintendent of Forest Surveys, and the officers of the School Circle.

The number of students at the School shows a decrease compared with previous years, 54 paid students and 29 private students attending, as against a total of 106 in the year before. No certificates with honours were awarded. Twenty-nine students obtained certificates as Rangers and 5 as Foresters. At the final examination held in March 1896 no less than 6 stipendiary students failed

to obtain certificates. The Government of India drew attention to this fact in their Resolution reviewing the School Report for 1895-96, and consider that stipendiary students whose progress or conduct is unsatisfactory should, in accordance with the School rules 12(IX) and 28, have their stipends reduced or withdrawn, or should be removed from the School rather than be allowed to remain there at Government expense, only to fail at the final examination.

The Provincial Service of Extra-Deputy and Extra-Assistant Conservators will in the future be entirely recruited from officers who have been educated at the Dehra Dun Forest School or, in the case of the Bombay Presidency, from the Poona College of Science. With the growing importance of the Provincial Service it becomes every day of greater necessity that its members should have received a thorough technical education. The men who obtain with difficulty, or with the aid of grace marks, a Ranger's certificate at the Dehra School, are scarcely up to the desired standard, and some further qualification will probably be required to render officers eligible for promotion to the rank of Extra-Assistant Conservator.

V.—Forest Administration in Native States.

Copies of the Forest Administration Reports were received from the Mysore, Kashmir, Jodhpore, and Jeypore Native States. In Mysore, Mr. L. Ricketts, who retired towards the end of 1895, was replaced by Colonel Campbell-Walker. Owing mainly to a slackness in demand for sandal-wood, the forest revenue in this State decreased slightly as compared with the results of 1894-95, but, on the other hand, the area of the "State Forests" was increased by 141 square miles; while a commencement was made towards systematic management by starting the enumeration of sandal trees in all the districts. It is observed that the question of forming further considerable areas into "Reserves" and "State Forests" is being considered by the Darbar, that some little progress was made in preliminary surveys of reserved areas, but that a large amount of work still remains to be carried out as regards demarcation and forest-settlements before any great progress can be made in the preparation of working-plans.

In Kashmir the net revenue rose from R3,39,000 to R5,36,360, this large increase being due to an extension in the departmental sleeper works. Excellent progress has also been made in the estimation of forest areas, in demarcation and in boundary surveys, and the Government of India view with satisfaction the great advance made in the management of the forests during the past five years of Mr. McDonell's administration. At the same time it is trusted that the importance of taking measures to ascertain the permanent possibility of these very valuable deodar forests, will not be lost sight of.

The forest administration in Jeypore and Jodhpore continued to be satisfactorily carried out, though the number of browsers shown as grazing in the open forests in Jeypore seems to be somewhat excessive, as the figures given in Forms Nos. 54 and 55 show that 78,000 acres of forest were grazed over by 153,082 of these animals. Concerning forest conservancy in States that do no not issue printed Administration Reports, it is to be noticed that Mr. Thompson, lately Conservator of Forests in the Central Provinces, has been appointed to the charge of the Sirmur State forests, and that the preparation of simple working-schemes for the more important of the numerous small States surrounding Simla has been commenced.

APPENDICES.

Summary of the Revenue and Expenditure

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Central Provinces.	Burma (Lower).	Burma (Upper).	Assam.	Coorg.	Ajmere.	Baluchistan.
REVENUE.											
I.—Timber and other produce removed from the forests by Government agency.	...	24,440	4,25,890	6,10,920	1,29,300	18,39,740	1,80,260	4,530	76,070	...	1,880
II.—Timber and other produce removed from the forests by consumers or purchasers.	2,690	3,62,560	11,05,980	3,02,390	5,33,930	10,25,900	20,15,430	3,36,070	58,220	15,290	9,090
III.—Drift and waif wood and confiscated forest produce.	...	8,810	15,460	70,560	2,360	2,35,340	48,570	6,060	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	11,540	2,180	...	2,64,910	...	39,640	...	...	11,440
V.—Miscellaneous	...	22,900	41,490	28,450	31,350	48,660	37,020	47,730	960	320	520
Total Revenue .	2,690	9,18,710	16,01,340	10,14,500	9,96,940	34,14,550	22,81,280	4,25,030	1,35,250	15,610	14,930
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	...	39,160	2,45,020	2,20,210	36,410	5,21,690	41,660	9,270	10,340	...	1,330
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	54,990	41,340	3,380	1,23,170	16,170	4,770	28,360	...	...	...
III.—Drift and waif wood and confiscated forest produce.	...	2,390	7,640	13,470	40	96,400	18,770	160	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	3,860	...	...	8,510	...	...	...	...	2,260
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	13,700	40,070	90	...	...	15,450	...	...	...
VI.—Live-stock, stores, tools and plant	..	9,480	19,080	3,920	8,650	37,890	29,660	12,310	590	270	430
VII.—Communications and buildings .	...	50,340	1,15,200	37,440	30,210	28,570	27,490	16,810	2,210	686	360
VIII.—Demarcation, improvement, and extension of forests.	...	30,470	1,13,150	26,580	2,41,850	2,25,950	52,820	35,030	18,200	1,980	14,050
IX.—Miscellaneous	...	2,550	9,000	1,910	4,200	5,010	3,180	1,810	1,520	130	50
Total A.—Conservancy and Works .	...	1,89,380	5,33,090	3,76,080	4,44,620	9,39,620	1,78,350	1,16,170	33,860	3,260	18,480
B.—Establishments.											
I.—Salaries	65,660	2,33,930	3,38,690	2,42,190	4,32,240	3,51,210	3,35,970	1,40,470	35,480	10,720	20,050
II.—Travelling allowances . . .	11,340	31,870	33,500	33,240	43,000	45,810	50,670	21,510	8,330	1,210	2,760
III.—Contingencies	3,410	10,890	21,640	21,910	31,880	20,600	10,870	7,990	2,150	510	480
Total B.—Establishments.	*80,410	2,76,690	4,04,830	3,02,340	5,07,720	4,18,120	3,97,510	1,69,970	45,960	12,470	23,290
Grand Total of Expenditure .	80,410	4,66,070	9,42,860	6,78,420	9,52,340	13,57,740	5,75,860	2,86,140	85,810	15,730	41,770
Surplus .	...	4,52,640	6,58,480	3,36,080	44,600	20,56,810	17,05,420	1,38,890	49,440	...	...
Deficit .	77,720	...	...	...	...	...	...	...	...	90	26,840

* Includes salary of the Inspector-General and Assistant Inspector-General

DIX I.

of the Forest Department in India for the Financial year 1895-96.

Territories).			Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand Total.	Budget Heads.
Andamans.	Forest School.	Forest Surveys (Imperial)							
R	R	R	R	R	R	R	R	R	REVENUE.
1,28,150	...	...	34,21,180	3,80,060	13,65,470	51,66,710	...	51,66,710	I.—Timber and other produce removed from the forests by Government agency.
3,770	...	...	65,64,300	16,53,700	20,62,170	1,02,80,170	4,89,610	1,07,69,780	II.—Timber and other produce removed from the forests by consumers and purchasers.
...	...	...	3,37,160	11,920	6,390	4,05,470	190	4,05,660	III.—Drift and waif wood and confiscated forest produce.
...	...	...	3,20,710	...	22,330	3,43,040	...	3,43,040	IV.—Revenue from forests not managed by Government.
200	4,310	510	2,64,450	64,890	80,310	4,09,650	4,540	4,14,190	V.—Miscellaneous.
1,32,120	4,310	510	1,09,57,800	21,10,570	35,36,670	1,66,05,040	4,94,340	1,70,99,380	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
44,400	...	...	11,67,390	1,82,220	5,91,140	19,41,250	...	19,41,250	I.—Timber and other produce removed from the forests by Government agency.
210	...	...	2,72,330	88,740	45,510	4,06,580	38,560	4,45,08	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,39,010	2,680	390	1,42,080	...	1,42,080	III.—Drift and waif wood and confiscated forest produce.
...	...	...	14,630	...	...	14,630	...	14,630	IV.—Revenue from forests not managed by Government.
...	...	...	69,310	21,090	50,400	1,40,500	17,120	1,57,620	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
29,080	970	2,550	1,53,850	31,960	10,160	1,96,020	4,590	2,00,610	VI.—Live-stock, stores, tools and plant.
2,270	520	...	3,19,300	71,770	19,790	4,10,860	20,480	4,31,340	VII.—Communications and buildings.
1,630	...	4,360	7,63,500	2,72,950	2,32,120	12,68,570	24,570	12,93,140	VIII.—Demarcation, improvement, and extension of forests.
4,420	3,570	30	37,410	7,550	33,060	78,020	520	78,540	IX.—Miscellaneous.
81,410	5,060	6,940	29,37,260	6,78,950	9,82,270	45,98,510	1,05,780	47,04,290	Total A.—Conservancy and Works.
									B.—Establishments.
18,200	56,360	16,970	23,03,640	6,03,560	8,17,570	37,24,770	1,11,560	38,36,330	I.—Salaries.
2,260	3,810	40	3,01,000	1,22,200	1,16,180	5,39,380	16,056	5,55,436	II.—Travelling allowances.
150	2,750	6,000	1,41,280	40,870	42,370	2,24,440	12,120	2,36,560	III.—Contingencies.
20,610	62,890	23,010	27,45,840	7,66,630	9,76,120	44,88,590	1,39,730	46,28,320	Total B.—Establishments.
1,02,020	67,950	29,950	56,83,100	14,45,610	19,58,390	90,87,100	2,45,510	93,32,610	Grand Total of Expenditure.
30,100	...	...	52,74,700	6,64,960	15,78,280	75,17,940	2,48,880	77,66,770	Surplus.
...	63,640	29,340	...	...	...	...	...	...	Deficit.

of Forests and their establishments and contingencies.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1871-72 to 1895-96.

REVENUE.

Provinces.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial† .	2,331	2,771	1,225	1,111	1,465	2,190	1,36,772	16,716	17,214	18,837	27,107	30,732	32,907	26,571	14,703	4,186	4,817	4,967	4,759	6,320	6,633	5,210	2,690	4,981	2,690
Bengal . .	1,55,719	1,49,852	1,79,365	1,85,932	1,98,271	2,22,101	1,26,222	1,15,627	1,19,523	5,61,319	6,33,731	6,93,959	6,91,331	5,71,152	5,97,432	6,53,631	6,57,791	6,76,907	7,68,718	7,27,392	7,59,553	7,54,890	8,01,618	7,55,671	9,18,710
North-Western Provinces and Oudh . .	11,70,900	10,39,115	10,32,677	13,63,358	12,61,359	11,50,571	12,03,108	11,26,755	10,39,995	9,42,223	10,05,091	10,13,405	16,11,333	15,72,319	16,61,495	15,73,556	12,47,454	14,62,902	17,14,159	16,37,879	17,31,514	16,52,540	17,09,860	16,58,250	16,01,310
Punjab . .	7,10,218	6,52,995	7,22,539	8,34,871	9,09,831	8,98,758	6,83,711	5,00,619	6,49,819	6,71,671	6,83,308	7,05,709	9,10,177	7,49,252	8,50,919	11,27,277	7,86,935	10,45,763	9,21,713	8,34,370	10,20,071	8,12,630	9,13,300	10,22,430	10,14,500
Central Provinces . .	5,57,122	4,81,673	5,63,367	6,60,938	7,26,176	6,61,226	6,83,910	8,82,862	10,05,724	8,50,139	11,72,831	9,77,647	9,91,769	10,27,202	10,36,894	9,57,410	10,93,369	11,80,105	11,56,181	12,13,161	12,59,909	12,30,850	11,31,198	10,08,630	9,96,910
Burma (Lower)	7,72,400	8,27,569	10,63,621	10,71,802	17,79,020	15,54,108	16,03,032	11,37,567	11,80,190	15,16,613	22,31,891	25,03,893	25,09,275	16,70,932	20,23,859	19,95,667	22,18,897	26,09,305	31,31,715	26,77,671	28,58,115	35,83,370	31,55,350	32,71,200	31,11,550
Burma (Upper) . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,03,071	2,95,878	15,79,923	18,06,070	16,44,297	13,27,300	20,76,630	22,93,750	21,62,580	22,81,280
Assam . .	...	...	...	65,919	61,870	81,562	1,31,226	1,61,779	1,61,335	1,65,597	1,66,051	2,18,605	2,11,445	1,80,411	1,96,656	2,12,911	2,67,312	3,03,882	3,79,196	3,26,793	2,36,123	2,82,830	3,88,500	4,35,000	4,25,030
Coorg . .	92,466	81,125	1,10,284	58,015	1,07,160	75,927	1,01,615	52,020	1,01,786	87,857	1,00,264	1,38,022	87,822	1,12,234	89,386	99,291	1,27,028	1,36,182	92,753	1,35,561	1,22,597	1,80,630	1,73,790	1,53,050	1,35,250
Ajmere . .	...	24	301	202	410	905	3,002	1,211	1,861	1,121	4,065	7,125	8,190	10,550	9,697	11,271	14,291	13,571	11,582	15,286	19,799	14,859	14,629	12,840	15,040
Forest Surveys (Imperial) .	...	...	...	...	21	...	...	63	39	272	...	318	36	231	202	241	40	315	229	2,104	257	520	210	39	510
Forest School .	...	...	...	...	...	...	...	...	...	...	...	...	...	73	272	115	777	449	1,237	1,184	1,722	1,989	1,990	2,790	4,310
Andamans .	5,820	6,852	5,184	5,516	5,363	4,673	4,304	5,564	2,137	27,734	43,307	70,258	21,762	12,213	23,944	31,870	1,08,062	2,06,975	1,62,195	1,58,328	2,72,333	2,60,190	4,11,770	1,14,530	1,32,120
Total . .	34,56,043	31,15,286	35,97,567	42,50,739	50,54,246	53,59,129	52,71,203	46,13,894	48,86,955	56,39,121	64,51,205	70,85,303	76,11,504	63,04,965	67,77,906	69,19,582	71,19,610	1,01,53,811	93,80,571	90,05,351	8,10,67,530	9,11,67,960	1,06,55,120	1,09,42,870
Madras . .	5,76,261	5,95,188	6,13,653	5,14,101	6,77,373	5,92,573	5,50,310	6,06,788	6,26,168	7,36,530	8,06,908	9,66,412	9,53,701	11,66,915	11,98,650	12,46,911	13,71,920	15,15,005	15,57,627	17,95,498	16,94,215	15,77,210	16,87,180	18,94,630	21,10,570
Bombay . .	11,50,215	11,46,405	11,89,089	12,21,051	12,43,672	12,26,658	12,68,528	11,81,891	15,21,712	15,22,807	14,28,117	20,90,259	25,03,806	27,73,812	33,65,226	30,32,679	30,32,572	28,50,150	31,37,695	32,88,226	32,84,619	32,09,550	37,94,350	37,50,630	35,36,570
Total (British India) . .	51,82,519	48,86,879	53,99,309	59,89,182	69,80,291	71,78,360	67,88,293	64,59,830	67,68,771	71,06,556	87,75,146	96,48,303	1,05,11,912	98,45,952	1,03,69,901	1,10,57,193	1,12,27,182	1,34,81,806	1,40,49,194	1,44,64,302	1,48,85,216	1,58,98,230	1,72,09,190	1,62,50,180	1,65,90,110
Berar . .	1,56,513	2,56,563	2,69,259	2,60,673	2,32,722	2,53,072	2,79,226	2,88,704	2,07,500	2,05,556	2,23,511	2,92,014	3,09,218	2,97,185	3,10,851	3,25,251	4,05,117	4,07,977	4,10,561	4,87,109	5,11,185	4,31,669	4,82,800	4,73,400	4,94,310
Forest Surveys (Berar.)	...	...	...	...	...	...	...	...	...	...	...	...	...	231	631	651	595	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	...	...	14,375	18,616	5,639	4,752	6,089	14,952	14,031	14,063	5,663	13,997	15,721	20,699	19,090	20,730	16,300	14,930
Grand Total .	53,38,032	51,43,442	56,68,568	62,49,855	72,13,013	74,31,432	70,67,519	67,48,534	70,72,271	73,27,488	90,26,273	97,45,153	1,08,51,882	1,01,90,176	1,12,05,315	1,13,96,866	1,16,46,288	1,38,94,451	1,53,03,572	1,49,67,132	1,54,17,016	1,63,51,310	1,77,13,020	1,67,38,880	1,70,99,390

* The figures in this statement have been revised by the Comptroller and Auditor-General.
† Includes certain home receipts and undistributable and petty local items.

EXPENDITURE.

Provinces.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	66,580	67,150	70,216	81,216	48,239	44,004	98,039	63,956	73,810	65,291	77,635	97,253	98,266	96,306	88,215	86,269	78,625	86,199	81,311	85,114	65,788	1,07,720	80,910	84,950	80,110
Bengal	1,10,989	1,00,777	1,39,273	1,01,361	1,12,676	2,16,197	2,62,913	3,38,625	2,75,718	3,35,381	3,94,612	3,82,183	3,87,811	4,11,915	3,70,389	4,22,721	3,90,366	3,76,270	3,96,150	4,11,008	4,22,939	3,81,610	4,04,610	3,97,250	4,05,070
North-Western Provinces and Oudh	11,10,071	11,71,566	11,90,794	10,61,302	7,35,979	8,61,262	7,28,926	8,09,977	7,16,594	6,79,573	8,16,212	8,39,625	10,41,885	10,20,101	9,75,519	9,19,583	8,30,738	8,44,544	9,63,151	9,19,195	9,58,211	9,28,540	9,53,020	9,36,310	9,42,840
Punjab	7,07,619	8,90,269	6,11,555	6,53,983	5,56,911	5,25,659	5,20,631	5,23,551	4,80,676	4,85,358	5,16,289	5,00,750	6,53,116	5,53,070	6,75,582	7,16,510	6,77,912	5,93,885	6,45,855	6,53,061	6,40,275	6,56,720	6,36,430	7,22,120	6,78,420
Central Provinces	2,31,633	2,50,578	2,85,939	2,91,519	2,73,327	2,90,286	3,22,691	3,93,755	5,22,571	4,95,512	4,97,612	4,12,287	4,36,055	4,95,821	4,15,132	4,59,282	5,52,939	6,68,697	6,96,445	7,35,554	8,03,915	8,51,400	9,32,180	9,76,060	9,52,310
Burma (Lower)	3,78,217	3,35,759	4,75,301	6,63,517	8,15,656	10,05,554	8,58,231	7,18,402	7,53,190	7,12,568	11,50,224	12,28,855	12,17,824	12,12,223	11,50,952	10,25,830	10,32,691	12,31,944	13,32,844	16,86,475	13,25,121	13,63,250	13,61,640	13,78,250	13,17,710
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,183	1,21,152	7,85,129	2,72,900	3,02,315	3,72,950	5,61,750	5,20,860	5,39,760	5,75,820
Assam	...	...	...	60,367	69,397	90,520	1,01,153	1,26,021	1,32,819	1,52,725	1,65,261	1,71,823	1,98,562	1,97,009	2,11,491	2,12,287	2,25,492	2,03,905	2,57,129	2,83,152	2,67,525	2,64,070	2,62,220	2,72,010	2,36,180
Coorg	70,178	29,378	45,952	37,992	40,163	33,092	36,925	34,825	55,165	56,587	59,796	64,780	75,022	86,951	65,650	71,085	72,029	80,175	72,120	65,818	86,809	73,050	66,990	86,160	85,810
Ajmere	...	13,054	17,932	15,231	27,346	22,169	15,928	13,445	13,750	12,123	12,954	11,281	11,571	16,316	16,169	20,744	18,897	15,676	12,701	12,710	13,985	15,000	15,900	14,900	15,720
Forest Surveys (Imperial)	...	...	59,566	78,090	58,938	58,929	60,165	60,325	46,878	40,335	42,189	51,595	30,910	19,823	19,188	23,318	32,958	22,164	21,189	21,324	26,832	22,140	27,900	29,840	29,950
Forest School	...	...	...	...	...	...	...	...	...	...	...	...	...	22,562	24,229	30,833	33,129	32,961	29,646	25,191	44,347	50,400	65,530	65,980	67,950
Andamans	1,651	1,895	...	...	...	1,307	1,096	...	7,177	2,160	2,206	1,940	12,151	22,760	37,035	25,758	62,679	57,295	94,975	1,20,052	1,79,909	2,21,210	2,44,550	1,22,780	1,02,020
Total	26,79,338	28,64,728	29,05,524	30,52,583	28,63,532	31,48,279	30,04,442	30,82,915	30,78,691	30,37,821	38,35,371	39,91,740	41,67,252	43,50,563	40,79,137	41,15,548	41,31,532	50,01,844	48,79,615	47,87,964	52,69,208	53,86,020	55,88,090	56,26,170	56,42,220
Madras	3,91,921	5,43,756	4,74,920	5,85,911	5,92,609	6,25,560	5,65,624	4,96,916	5,18,527	5,19,226	6,03,419	6,45,352	7,86,733	8,56,506	9,37,972	11,53,122	11,29,212	12,20,764	11,61,237	12,16,913	13,21,254	13,30,390	13,62,770	13,86,250	14,15,610
Bombay	5,97,831	7,25,031	7,21,594	8,26,675	7,91,111	8,39,979	8,77,716	10,01,923	10,76,989	11,67,247	11,69,181	12,72,770	15,61,172	17,72,723	18,39,461	19,52,910	19,44,005	16,93,952	17,79,698	18,09,287	19,31,457	19,04,990	20,71,240	20,67,920	19,56,220
Total (British India)	36,67,640	41,38,505	41,02,037	44,85,205	42,49,812	46,22,818	44,47,782	45,83,785	47,04,207	47,24,141	56,08,171	57,25,862	65,14,157	69,25,791	68,56,570	72,21,580	72,04,750	79,19,600	78,11,513	78,64,764	84,65,319	86,21,399	89,22,700	90,80,340	90,16,330
Berar	1,00,829	83,631	86,356	91,389	91,119	91,652	1,02,993	1,07,350	1,10,503	1,28,958	1,52,985	1,55,055	1,56,179	1,52,619	1,50,252	1,71,701	1,83,765	1,70,212	1,76,549	1,68,921	1,98,366	2,29,230	2,51,250	2,51,640	2,15,510
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	...	15,043	34,804	42,940	45,472	42,068	23,955	6,161	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...	16,416	17,532	11,982	16,911	13,266	15,799	17,856	17,753	15,594	17,962	29,450	30,497	55,620	63,730	40,910	41,770
Grand Total	37,68,469	42,22,136	41,88,387	45,76,594	43,41,311	47,17,470	45,57,759	46,91,135	48,14,713	48,69,525	57,79,138	58,92,878	67,06,190	70,26,510	70,74,551	75,55,592	74,48,366	81,29,761	80,12,518	80,53,135	86,94,182	89,06,730	92,40,700	93,73,220	93,33,610

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

SURPLUS.

Provinces.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial* .	−64,196	−61,377	−77,961	−89,095	−46,771	−41,511	28,672	−47,240	−55,858	−46,401	−59,222	−56,536	−65,359	−69,732	−73,537	−82,113	−73,779	−82,182	−76,552	−79,011	−59,160	−1,02,030	−78,103	−79,690	−77,720
Bengal . .	33,730	19,975	10,922	24,571	55,596	7,904	1,63,315	77,332	1,73,776	2,25,956	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,526	3,00,637	3,70,563	3,12,389	3,06,922	2,63,279	3,97,520	3,98,230	4,52,610
North-Western Provinces and Oudh . .	60,629	7,64,115	7,41,853	3,02,056	5,27,377	2,89,309	1,73,122	3,16,778	3,53,372	2,62,654	1,49,882	1,71,378	5,69,459	5,52,218	4,86,976	6,53,978	4,16,705	6,18,258	7,51,003	7,18,634	7,72,203	7,24,000	7,46,910	7,21,910	6,58,190
Punjab . .	2,697	−2,37,771	1,20,983	1,75,891	3,52,926	73,696	3,63,663	−22,935	1,60,113	1,76,310	2,72,693	2,65,959	2,57,031	1,91,282	1,71,926	4,10,767	1,09,924	4,54,823	2,75,854	1,81,325	3,79,786	1,56,360	2,76,570	3,16,310	3,36,080
Central Provinces . .	3,25,496	2,31,695	2,82,428	3,05,489	3,52,849	3,71,031	3,61,876	4,59,101	4,81,156	2,54,627	6,75,871	5,65,840	5,53,711	5,31,231	5,91,462	4,58,117	5,80,130	5,12,708	4,59,736	4,77,907	5,55,635	3,79,150	2,02,296	32,570	44,600
Burma (Lower)	3,93,183	5,90,810	5,93,317	4,13,255	9,63,361	5,35,854	7,44,451	4,19,107	1,26,700	8,06,015	10,31,599	12,71,941	12,91,851	4,58,719	8,72,987	9,22,827	11,86,903	13,77,261	13,09,872	16,91,197	15,32,993	22,20,120	21,47,710	18,56,970	20,56,816
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,65,856	1,75,721	7,91,799	15,32,270	13,41,982	9,53,441	16,34,859	17,76,850	16,22,820	17,05,429
Assam . .	...	...	...	5,582	+1,527	−8,952	33,173	25,751	31,508	25,272	693	67,782	11,833	−17,235	−14,838	−276	59,121	93,977	1,22,269	42,911	63,601	1,18,769	2,20,280	1,63,060	1,38,890
Coorg . .	22,283	54,946	61,332	20,015	67,292	42,285	64,717	17,191	46,621	31,270	40,563	73,252	12,799	36,282	22,056	25,203	54,339	56,016	20,333	69,715	96,037	1,07,560	86,900	66,910	49,610
Ajmere . .	...	+13,630	−17,622	+15,079	−26,932	−21,556	+11,924	−15,204	−11,285	−11,760	+9,889	−8,158	−6,376	−5,850	−6,772	−3,870	−4,604	−2,102	−1,109	2,546	5,813	−110	−1,230	−2,060	−90
Forest Surveys (Imperial) .	...	...	59,666	−78,000	−58,909	−58,929	−60,165	−60,282	−46,840	+40,053	−42,189	−41,217	−30,904	−19,589	−18,978	−28,107	−32,823	−21,819	−20,968	+22,220	−26,625	−21,640	−27,060	−29,760	−29,140
Forest School .	...	...	...	...	...	...	...	...	...	...	...	...	...	−22,495	+23,966	−30,616	−32,352	−32,512	−28,469	−34,007	−42,559	−48,129	−63,540	−63,190	−63,640
Andamans . .	4,229	4,965	4,181	5,516	5,363	2,372	205	5,561	−4,730	25,571	46,101	69,018	12,601	−547	−13,091	6,103	47,333	48,780	57,220	28,271	92,429	1,29,230	1,97,210	−8,250	30,100
Total . .	7,78,155	12,80,555	15,92,611	11,98,161	21,90,611	12,06,850	19,72,013	11,88,259	15,25,200	18,09,015	27,03,250	26,19,565	29,17,856	17,93,511	22,25,822	26,53,358	26,98,162	41,14,795	52,71,195	46,32,727	55,95,713	56,61,510	53,79,950	50,28,650	53,01,510
Madras . .	1,81,340	56,142	1,23,733	+81,516	85,834	+12,987	−15,211	1,10,871	77,611	2,17,610	2,03,183	2,61,690	1,66,671	2,70,411	2,60,678	93,783	2,55,708	2,98,212	3,96,850	5,53,496	3,69,962	2,46,820	5,84,410	5,07,680	6,68,960
Bombay . .	5,52,281	4,21,371	4,06,195	3,87,376	4,54,531	3,87,679	3,83,812	1,76,971	4,47,723	3,55,460	6,54,936	8,11,683	9,33,929	9,96,119	15,26,825	10,79,766	10,83,572	11,56,223	13,67,695	14,18,339	18,53,192	13,69,550	17,22,430	16,82,110	15,78,220
Total (British India) .	15,14,378	17,18,371	22,27,272	15,03,977	27,30,979	15,46,512	23,40,511	14,76,101	20,50,567	23,82,115	31,05,375	37,22,238	40,23,755	30,60,171	40,13,331	37,36,912	40,22,432	55,69,206	70,37,501	65,79,562	78,18,867	72,72,910	77,86,790	72,18,440	75,48,730
Berar . .	54,711	1,72,332	1,76,508	1,69,285	1,11,282	1,58,120	1,69,268	1,88,354	1,76,894	1,37,583	80,526	1,26,905	1,41,132	1,11,535	1,36,669	1,54,562	2,22,682	2,27,765	2,63,902	3,18,188	3,12,819	2,61,759	2,28,550	2,21,760	2,58,830
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	...	...	...	−15,843	−23,570	−12,309	−11,821	−11,502	−23,955	−6,464	...	...	...	...	...	...
Baluchistan .	...	...	...	..?	...	...	...	...	...	−2,049	931	−6,923	−12,159	+7,177	+837	−2,755	−3,690	−10,525	−4,065	+13,726	−9,953	−26,590	−13,009	−24,610	−26,910
Grand Total .	15,69,593	19,21,305	24,71,178	16,73,262	28,72,262	17,04,632	25,09,779	16,57,159	22,57,461	25,17,059	32,17,126	38,52,220	41,17,902	31,63,609	41,39,791	39,13,896	41,99,922	57,63,030	72,91,054	69,04,676	67,22,822	71,38,116	78,72,230	73,15,560	77,66,710

C. I. C. P. O.—No. 302 R. & A.—10-12-97.—210.—W. G. B.

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1896-97.

BY

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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREA.

I.—Alterations in area.

The alterations which took place during the year in the area of Reserved forests are shown in the following table :—

Province.	Area of Reserved Forests, in square miles.				Remarks.
	In 1895-96.	Added in 1896-97.	Excluded in 1896-97.	At close of 1896-97.	
Bengal	5,877	...	1	5,876	(*a*) Includes 158 square miles of *leased* forests.
North-Western Provinces and Oudh	3,766	80	24	(*a*) 3,822	(*b*) Includes 261 square miles of *leased* forests.
Punjab	1,680	2	1	(*b*) 1,681	(*c*) Includes 619 square miles of *taungya* areas.
Burma (Lower)	7,378	197	325	(*c*) 7,250	(*d*) Includes 227 square miles of *taungya* areas.
Burma (Upper)	5,439	1,394½	25½	(*d*) 6,808	(*e*) Includes *leased* forests in the Dangs, estimated at 679 square miles.
Central Provinces	19,293	99	134	19,258	
Assam	3,685	...	4	3,681	
Coorg	238	...	...	238	
Ajmere	139	...	...	139	
Baluchistan	175	...	5	170	
Andamans	73	12	...	85	
Total	47,743	1,784½	519½	49,008	
Berar	4,178	23	22	4,179	
Total Bengal Presidency	51,921	1,807½	541½	53,187	
Madras	12,388	863	113	13,138	
Bombay	(*e*) 12,173	831	18	(*e*) 12,986	
GRAND TOTAL	76,482	3,501½	672½	79,311	

There was thus an increase in the total area of Reserved forests of 2,829 square miles, as compared with an increase of 2,211 square miles in the previous year. As anticipated in the Review for the year 1895-96, there were large increases in Upper Burma, where 1,394 square miles were added to reserves. Further large areas in Upper Burma were examined and in various stages of settlement, and some 5,000 square miles of forest will probably be shortly formed into reserves. Important areas were also added in Madras and in Bombay.

The following table gives the total areas of all forest lands under the management of the Department at the close of the year :—

Province. Name.	Area, in square miles.	Forest area, in square miles. Reserved.	Protected.	Unclassed State.	Total.	Proportion of Forests to whole area of Province.	Remarks.
						Per cent.	
Bengal	151,535	5,876	(a)3,378	4,034	13,288	8·76	(a) Rough estimate.
North-Western Provinces and Oudh.	107,129	(b)3,822	94	43	3,959	3·69	(b) Includes 158 square miles of *leased* forests.
Punjab	103,436	(c)1,381	(d)2,877	2,258	6,816	6·58	(c) Includes 261 square miles of *leased* forests, and excludes 123½ square miles managed by the Military and Civil authorities.
Burma (Lower)	87,831	(e)7,250	(f)	...	7,250	8·25	(d) Exclusive of 131½ square miles managed by the Civil authorities.
Burma (Upper)	81,026	(g)6,808	(f)	...	6,808	8·40	(e) Includes 619 square miles of *taungya* areas.
Central Provinces	86,643	19,258	...	352	19,610	22·63	(f) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Assam	45,378	3,681	...	11,244	14,925	32·88	
Coorg	1,582	238	650	...	888	56·13	
Ajmere	2,711	139	...	(h)10	149	5·50	
Baluchistan	...	170	...	...	170	...	
Andamans	2,000	85	...	1,868	1,953	97·65	
Total	669,271	49,008	6,999	19,809	75,816	(i)11·30	(g) Includes 227 square miles of *taungya* areas.
Berar	17,717	4,179	...	...	4,179	23·59	(h) Village lands managed by the Forest Department, but not yet brought under the Ajmere Forest Regulation.
Total Bengal Presidency.	686,988	53,187	6,999	19,809	79,995	(i)11·62	(i) Baluchistan left out of account.
Madras	88,975	13,138	...	5,769	18,907	21·25	(j) Includes the area of the *leased* forests in the Dangs, estimated at 679 square miles.
Bombay	110,277	(j)12,986	2,025	4	15,015	13·61	
GRAND TOTAL	886,240	79,311	9,024	25,582	113,917	(i)12·83	

The total area of lands under the control of the Forest Department at the close of the previous year stood at 112,511 square miles, and there has consequently been an increase of 1,406 square miles. The area of Protected forests rose by 677 square miles owing to the conclusion of the Kangra and Kulu settlements. The area of Unclassed forests, from which Protected forests were formed, similarly decreased. The following shows the details of changes in the various provinces :—

Bengal.—There were but few changes of importance; an area of 500 acres was excluded from Reserved forests for tea cultivation in the Tista Division; from the Protected forests, the area of which, however, is not at present known, 59 square miles were excluded for the extension of cultivation in the Sundarbans. The area of Unclassed forests remained unchanged at 4,034 square miles.

North-Western Provinces and Oudh.—There was no change in the area of Protected and Unclassed forests. The area of Reserves shows an increase of 56 square miles owing to the inclusion therein of the leased forests of Tehri-Garhwál.

Punjab.—The following are the most important changes which occurred during the year :—

In Kangra 452,793 acres of Unclassed forests were made Protected forests. In Kulu 2,680 acres of Unclassed forest were made Protected, and in Shahpur 505,466 acres were transferred from the charge of the Civil authorities to that of the Forest Department. This area, together

with some 273,000 acres from the Jhelam and Chenab Divisions, was formed into the new Shahpur Division.

Burma.—The following extract from the Local Government's review explains the changes which took place :—

"At the beginning of the year the area of Reserved forests in Lower Burma was 7,378 square miles. In the Tenasserim Circle a recomputation of areas from accurate survey maps reduced the area of Reserved forests from 4,332 square miles to 4,142 square miles, while in the Pegu Circle a net increase of 62 square miles was due to the same cause. In Upper Burma the total area of Reserved forests at the commencement of the year was 5,438 square miles. In the Eastern Circle 534 square miles and in the Western Circle 857 square miles of new reserves were added. The total area of Reserved forests in Burma at the close of the year was 14,058 square miles, of which 845 square miles were burdened with *taungya* privileges, against 12,817 square miles and 710 square miles in the previous year."

The following statement gives the areas of Reserved forests in each Circle at the close of the year :—

Circle.	Area in square miles.			Proportion of forests to area of Province.
	Reserved forests.	Taungya areas.	Total.	
Pegu	2,737	371	3,108	...
Tenasserim	3,894	248	4,142	...
Total Lower Burma	6,631	619	7,250	8·25
Eastern	2,446	165	2,611	...
Western	4,135	62	4,197	...
Total Upper Burma	6,581	227	6,808	8·40

Central Provinces.—The following statement contrasts the areas and classification of the forests as they stood at the beginning and end of the year, respectively :—

Class.	Area, in square miles.					
	Southern Circle.		Northern Circle.		Total.	
	June 1896.	June 1897.	June 1896.	June 1897.	June 1896.	June 1897.
A	6,252	7,313	4,274	5,293	10,526	12,606
B-I	1,047	1,131	1,864	1,856	2,911	2,987
B-II	2,328	1,142	3,528	2,523	5,856	3,665
Unclassed	348	336	16	16	364	352
Total	9,975	9,922	9,682	9,688	19,657	19,610

The decrease in area of 53 square miles in the Southern Circle is due to disforestment (21 square miles), the correction of areas by forest survey (18 square miles), and to the re-adjustment of the boundaries of excised lands (9 square miles). In the Northern Circle correction of areas has added 11 square miles, but disforestment has taken off 5. Part of this disforestment is due to the exchange of land on account of the Khandwa water-works and part to petty re-adjustments of village boundaries, all of which were effected in the districts of Damoh and Saugor.

In the Southern Circle, 119 square miles were either excised for cultivation or about to be so dealt with, and in the Northern Circle proposals for considerable excisions in Betul and Nimar were under consideration. The question of excision in Mandla remained unsettled at the close of the year.

Assam.—The area of Reserved forests was reduced by 4¼ square miles for the extension of tea cultivation, that of Unclassed forests was reduced by 444 square miles, owing mainly to the relinquishment of waste-land grants. The area of Unclassed forests is now placed at 11,244 square miles, but the true area is not at present known.

Coorg.—The area of Reserved forests remained unchanged. From Protected forests 4 square miles were excluded, of which 2,000 acres were a grant for the cultivation of tea.

Ajmere.—There were no changes in the area of the forests.

Baluchistan.—The plantations of Shibu and Khushdil, which had proved failures, were disforested during the year, thus reducing the area of State forests by 5 square miles.

Andamans.—An area of 12 square miles was added to Reserved forests during the year, and shortly after its close a further area of 35 square miles, situated for the most part between Jirgatang and Middle Straits, South Andaman, was reserved, bringing the total area to 120 square miles.

Berar.—There were various changes in the classification of the forests, the total area being increased by 1 square mile.

Madras.—Eight hundred and forty-five square miles were constituted Reserved forests, but the total area of these, owing to disforestation for extension of cultivation and rectification of areas, was increased by 750 square miles only. The area of reserved lands fell by 921 square miles, of which 850 square miles were constituted reserves as above. The following statement gives the changes in the three Circles during the year :—

Circle.		Area, in square miles.				
		On 1st July 1896.	Added during 1896-97.	Excluded during 1896-97.	Increase or decrease.	On 1st July 1897.
Northern	Reserved forests	4,134	349	38	+311	4,445
	Reserved lands	2,424	126	436	—310	2,114
Central	Reserved forests	5,106	281	41	+240	5,346
	Reserved lands	1,776	158	421	—263	1,513
Southern	Reserved forests	3,148	283	34	+199	3,347
	Reserved lands	2,490	48	396	—348	2,142
Total	Reserved forests	12,388	863	113	+750	13,138
	Reserved lands	6,690	333	1,254	—921	5,769
	Grand Total	19,078	1,196	1,367	—171	18,907

Bombay.—The following extract from the Resolution of the Bombay Government on the Forest Administration Reports shows the changes of the year :—

"The following statement shows the changes that have taken place in the forest area during the year under review :—

Circle.	Area on 1st July 1896.			Added.		Excluded.		Area on 30th June 1897.		
	Reserved.	Protected.	Total Forest Area.	Reserved.	Protected.	Reserved.	Protected.	Reserved.	Protected.	Total Forest Area.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Northern Circle	*1,184	434	1,618	6	...	1	...	1,191	434	1,625
Central Circle	6,337	12	6,350	14	...	1	...	6,352	12	6,364
Southern Circle	2,910	2,334	5,245	794	...	51	756	3,703	1,578	5,278
Sindh Circle	1,060	4	1,064	†3	...	...	3	1,063	1	10,644
Total	11,493	2,785	14,278	821	...	72	760	12,308	2,025	14,333

* Excluding the area of leased forests in the Dangs, which is given as 678½ square miles.

† Exclusive of an area of 3 square miles of Unclassed forest.

In the Northern Circle the settlement operations added 4,924 acres to the North and Central Thána forests. In the Central Circle the area was increased by the rectification of book entries affecting some 4½ square miles, and by the reservation of some 10 square miles, chiefly in the Sátára district. The principal changes occurred in the Southern Circle, where in Kánara 664 square miles and in Bijápur 88 square miles of Protected forest were converted into Reserved, while fresh reserves, measuring 23½ and 8 square miles, respectively, were created in Bijápur and Kolába. In the Sindh Circle the alterations were unimportant, but it is noted that 3,514 acres were lost by erosion on the banks of the Indus."

II.—Forest Settlements.

In most provinces the selection and settlement of the areas to be maintained as permanent Forest estates is nearing completion, and in cases, as in the Central Provinces, the settlement work remaining is confined to that connected with the excision of areas to be given up for cultivation. In Upper Burma, Bengal and Madras alone do large areas still remain to be dealt with. In Burma much good progress was made, resulting in the final settlement of 1,406 square miles. At the close of the year no less than 4,800 square miles were in various stages of settlement, and further tracts in the Upper Chindwin, Myittha, Ruby Mines, and Shan States Divisions had been examined with a view to their settlement. In the Punjab, the conclusion of the Kangra settlement, which added an area of 707 square miles to Protected forests, is the chief feature of the year. In Madras 845 square miles were finally notified and 4,019 square miles were undergoing settlement at the close of the year. It is estimated that there remain some 4,000 square miles still to be taken in hand, and the work will probably take another five years to complete. In Bombay 820 square miles were finally notified reserves. The chief work remaining is in the Southern Circle, where some 1,100 square miles remained to be dealt with at the close of the year.

The following table shows the changes which took place in the area of forest lands under the control of the Department :—

Province.	Alterations in area, in square miles, during 1896-97.								Remarks.
	Reserved Forests.		Protected Forests.		Unclassed State Forests.		Total.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal	...	1	...	59	...	...	...	60	(a) Five acres obtained by rectification of previous area figures.
North-Western Provinces and Oudh.	(a)30	(b)24	...	...	...	...	30	24	(b) Due to rectification of previous area figures.
Punjab	2	1	1,501	...	(c)	(d)715	1,503	715	(c) Two hundred and forty-eight acres gained by river action.
Burma (Lower)	197	325	...	...	...	...	197	325	(d) Includes 188 acres lost by river action.
Burma (Upper)	1,394½	25½	...	...	...	...	1,394½	25½	(e) Ninety square miles obtained by rectification of previous area figures, and 9 square miles by survey re-measurements.
Central Provinces	(e)99	(f)134	...	...	...	12	99	146	(f) Seventy-nine square miles due to rectification of previous area figures, and 34 square miles to re-adjustment of boundaries.
Assam	...	4	...	...	263	707	263	711	(g) One hundred and nineteen acres obtained by rectification of previous area figures.
Coorg	...	...	...	4	...	...	...	4	(h) One square mile and 333 acres due to rectification of previous area figures.
Ajmere	...	...	...	...	...	...	...	...	(i) Seventeen square miles obtained by rectification of previous area figures.
Baluchistan	...	5	...	...	...	...	...	5	(j) Thirty-three square miles due to rectification of previous area figures.
Andamans	12	...	...	...	...	13	12	13	(k) Thirty one square miles obtained by rectification of previous area figures.
Net Total increase or decrease.	1,265	...	1,438	...	...	1,183	1,520	...	(l) Ninety-four square miles due to rectification of previous area figures.
Berar	(g)23	(h)22	...	...	...	...	23	22	
Net Total increase or decrease, Bengal Presidency.	1,266	...	1,438	...	...	1,183	1,521	...	
Madras	(i)363	(j)113	...	...	(k)333	(l)1,254	1,196	1,367	
Bombay	320	7	4	761	...	...	324	768	
Grand Net Total increase or decrease.	2,829	...	681	...	...	2,104	1,406	...	

The details of work done in the various provinces are as follows:—

Bengal.—One hundred and ninety-one square miles of forest in the Darjeeling, Tista and Kurseong Divisions were settled during the year. The whole area of Reserved forests, as given in Form No. 46, has now been finally settled. An area of 848 square miles, almost entirely in Chittagong, was undergoing settlement at the close of the year. The question of selection of fuel and fodder reserves to be managed by the Department as Reserved or Protected forests in the Jalpaiguri district remains undecided.

North-Western Provinces and Oudh.—The Local Government thus fully shows the progress made:—

"In the Central Circle, the only areas finally notified under section 19 of the Forest Act were the two small forests of Baidhoti and Kalimath in the Naini Tal Division, aggregating one square mile. On the other hand, the work of settlement was practically completed in the case of large and important areas, and arrangements had been concluded for taking in hand during the ensuing year the settlement of extensive tracts in the Tarái and Bhábar. In the same Circle various revisions of previous settlements under section 21 of the Forest Act had made progress, and the question of incomplete settlements effected in the case of certain areas originally notified under section 34 was finally disposed of by the publication of notifications ordering the settlement, under Chapter II of the Forest Act, of the Jhánsi and Lalitpur forests (Bundelkhand Division), and of the village lands of Chandi in the Chandi reserve of the Ganges Division.

In the Oudh Circle, the only existing settlements are connected with exchanges of land consequent on the re-alignment of the forest boundaries, and progress was here delayed by the difficulty of compiling accurate detailed schedules which should be mutually acceptable to the two parties interested.

In the School Circle, the work mainly consisted of certain boundary revisions in the Jaunsár Division, the effect of which was to exclude from the reserved forests some six square miles of cultivation."

Punjab.—The chief feature of the year's work was the completion of the settlement of the Kangra protected forests, area 707 square miles. The Kangra jagir forests still remain to be dealt with. The Shahpur-Kandi forest settlement report awaits the orders of Government. No other important settlement work was pending at the close of the year.

Burma.—Good progress was made in the settlement of reserves and in the selection of further valuable tracts suitable for reservation. The following areas were finally settled during the year:—

	Square miles.
Pegu	*Nil.*
Tenasserim	18
Eastern	531
Western	857
TOTAL	1,406

A further area of some 4,800 square miles, all of which have not however been brought on to Form No. 47, was undergoing settlement at the close of the year. Several tracts of forest, hitherto unvisited, were examined by local officers, more particularly in the Upper Chindwin, Myittha, Ruby Mines and Shan States Divisions.

Central Provinces.—In the Southern Circle, the forests of Maulabhanja and Halsari Dongri, area 10 square miles, were settled during the year. In the Seoni district two blocks, with an area of 19 square miles, were undergoing settlement and were notified during the year as proposed reserves under section 4 of the Indian Forest Act.

In the Northern Circle the small block of Jalandar was the only area settled. In the Damoh division, as soon as excisions for ryotwari settlement have been completed, the reservation of the remaining unclassed forest area will be taken in hand.

Assam.—There were no forests settled during the year. The settlement of the two blocks of Bárail and Langting-Mahar, area 201 square miles, was taken in hand.

Coorg.—No settlement work was undertaken. Pressure of other work prevented the enquiry into, and record of, the rights in the Protected forests.

Ajmere and Baluchistan.—The only work done was the revision of the record of rights and concessions, and this was concluded during the year. In Baluchistan all rights in existing State forests have been settled and no new work was necessary.

Andamans.—Twelve and a half square miles were settled and formed into the Dhani-Khari reserve, whilst 40 acres were also added to the Brigade Creek reserve. Some 35 square miles of forest have also been formed into reserves since the close of the year.

Berar.—There was no work under this head.

Madras.—The progress made is shown in the following table :—

Date.	Finally notified during the year ending with		Settled and reported on.		Under settlement.		Total yet to be reported.	
	Number.	Area, in square miles.	Number.	Area, in square miles.	Number.	Area, in square miles.	Number.	Area, in square miles.
30th June 1896 . .	185	858	208	1,986	333	2,747	541	4,733
30th June 1897 . .	136	845	143 *—4	1,453 —11	357	2,577	500	4,030

* Blocks notified during 1895-96, but taking effect only during 1897-98.

The area finally notified was thus 845 square miles, as compared with 858 square miles in the previous year. This does not by any means represent all the work done, no less than 4,019 square miles being in various stages of settlement. It is estimated that there remains an area of 4,030 square miles still to be taken in hand.

Bombay.—The Bombay Government remark—

"Forest Settlement Reports were completed during the year for the Dáhánu, Umbargaon, and Murbád ranges in Thána, and considerable progress in settlement took place also in Kánara. In all Circles the work is now well advanced ; in the Northern little remains but the revision of the Mándvi Táluka ; in the Central the acquisition of 15,816 acres of occupied lands within sanctioned forest limits is still under negotiation'; in the Southern the statistical statement furnished shows an area of 1,118 square miles unfinished, which, however, has been reduced by one-half by the sanction of proposals dealt with since the date of the report, and by the correction of inaccuracies in the original notification of area ; in Sindh the settlement of 16,862 acres is under the consideration of the Revenue officers. It is unfortunate that, owing to the deputation on famine duty of the Forest Settlement Officer, it was impossible to proceed with the field work of the Southern Circle."

III.—Demarcation.

The principal new demarcation work of the year was again in Madras and Bombay, where settlement operations are in full progress. In the former Presidency 1,376 miles and in the latter 3,107 miles of new boundary were demarcated. A considerable amount of preliminary demarcation and clearing of existing boundaries was also carried out. In the Bengal Presidency the demarcation of settled forests is nearly complete, with the exception of the Protected forests in Kangra and 816 miles of boundaries in Upper Burma. The chief remaining work is in Madras, where 3,041 miles, and in Bombay, where 9,332 miles (chiefly in the Central Circle), remain undemarcated. A total expenditure of ₹1,11,900 was incurred during the year on demarcation, of which ₹56,000 was spent on new work.

The following table shows the detail of the boundaries in the various provinces at the close of the year 1896-97:—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on Demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	11	2,027	249	2,287	...	1,702	3,989	106	8,573
North-Western Provinces and Oudh	Central Circle	8	810	1,579	2,397	...	614	3,011	248	2,348
	Oudh „	1	247	981	1,229	11	332	1,572	69	2,209
	School „	52	244	342	638	112	359	1,109	1,406	2,005
	Total	61	1,301	2,902	4,264	123	1,305	5,692	1,723	6,562
Punjab	.....	799	1,941	7,341	10,081	4,889	1,185	16,155	1,343	5,240
Lower Burma	Pegu Circle	92	613	872	1,577	...	903	2,480	299	2,992
	Tenasserim Circle	139	183	1,985	2,307	20	641	2,968	1,596	1,449
	Total	231	796	2,857	3,884	20	1,544	5,448	1,895	4,441
Upper Burma	Eastern Circle	182	353	1,051	1,586	274	92	1,952	1,713	1,941
	Western „	290	9	947	1,246	542	1,433	3,221	2,831	139
	Total	472	362	1,998	2,832	816	1,525	5,173	4,544	2,080
Central Provinces	Northern Circle	9	9,043	1,660	10,712	...	1,182	11,894	540	1,729
	Southern „	246	10,396	1,004	11,646	150	1,123	12,919	1,410	4,318
	Total	255	19,439	2,664	22,358	150	2,305	24,813	1,950	6,047
Assam	.....	26	1,088	17	1,131	3	1,353	2,487	616	2,115
Coorg	.....	...	248	6	254	...	11	265	773	158
Ajmere	.....	...	2½	198½	201	...	158	359	...	15
Andamans	.....	12	10	23	45	5	69	119	30	15
Baluchistan	.....	...	173	99	272	...	49	321	...	...
Berar	.....	78	989	230	1,297	38	180	1,515	841	952
Total Bengal Presidency	.....	1,945	28,376½	18,584½	48,906	6,044	11,386	66,336	13,821	36,198
Madras Presidency	Northern Circle	509	1,150	2,677	4,336	1,544	615	6,495	7,038	4,022
	Central „	629	1,327	9,625	11,581	1,063	186	12,830	7,581	4,097
	Southern „	238	549	4,411	5,198	434	749	6,381	2,102	6,247
	Total	1,376	3,026	16,713	21,115	3,041	1,550	25,706	16,721	14,366
Bombay Presidency	Northern Circle	260	744	1,326	2,330	2,024	328	4,682	4,814	257
	Central „	2,746	945	10,923	14,614	7,173	860	22 647	16,917	4,691
	Southern „	20	4	14,358	14,382	71	981	15,434	3,888	9
	Sindh „	81	1,375	425	1,881	64	556	2,501	240	...
	Total	3,107	3,068	27,032	33,207	9,332	2,725	45,264	25,859	4,957
Grand Total	.....	6,428	34,470½	62,329½	103,228	18,417	15,661	137,306	56,401	55,521

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions, such as blocks, compartments and coupes.

The detail of work in the different provinces was as follows:—

Bengal.—The total length of boundaries stands at 3,989 miles, of which 2,287 are demarcated artificially. Eleven miles of new boundary was completed and the whole length of boundary requiring artificial marks has now been completely demarcated. Two boundary disputes in the Palamau Division remained unsettled, but the outstanding dispute regarding the boundary of the Baikantpur estate was practically settled at the close of the year. A total expenditure of R8,679 was incurred chiefly on repairs.

North-Western Provinces and Oudh.—In the Central Circle, the newly formed reserve of Baldhoti-Kalimath was demarcated, bringing the total number of miles of boundaries demarcated artificially to 2,397. All forests in this Circle are now demarcated, but some work still remains connected with the demarcation of village lands inside the forests of the Garhwal and Naini Tal Divisions. Some important work was done in clearing boundary lines, useful also for fire conservancy, in the Bundelkhand Division. In the Oudh Circle the demarcation of boundaries by monoliths was continued, and an expenditure of R2,278 was incurred, mostly on repairs; 11 miles only still require new demarcation. In the School Circle there remain 112 miles requiring demarcation, chiefly in the leased forests. Fifty-two miles of new lines were demarcated during the year in the new leased forests and in cultivated lands disforested in the Jaunsar Division.

Punjab.—Four hundred and ninety-one miles in Shahpur, and 287 miles in Montgomery were demarcated during the year. Rupees 1,343 were spent on new work and R5,240 on repairs. A good deal of demarcation work still remains to be done in the Kangra Division, where the new Protected forests are as a rule undemarcated.

Burma.—The work of the year is thus described by the Local Government—

"The demarcation of 231 miles of reserve boundaries was carried out in Lower Burma at a cost of R1,895, and an outlay of R4,441 was incurred on repairs to, and renewal of, boundary marks. In Upper Burma 472 miles of boundary were demarcated at a cost of R4,544, and R2,090 were spent on repairs to existing marks. The total length of boundary still remaining to be demarcated is 836 miles, of which 816 miles are in Upper Burma and 20 in Lower Burma."

Central Provinces.—In the Northern Circle, all boundaries of forests are demarcated, but there still remains much work in the demarcation of forest villages, as well as in improving boundaries in the Nimar Division. In the Southern Circle, 126 miles remain in Chanda, 14 in Balaghat and 10 in Bilaspur. Two hundred and forty-six miles of new lines were demarcated, whilst 10,396 miles of lines were cleared. A total expenditure of R7,997 was incurred, of which R6,047 were spent on repairs.

Assam.—The total length of demarcated boundaries stands at 2,131 miles. Twelve miles of new lines were demarcated in Goalpara and 14 miles in Lakhimpur, whilst an expenditure of R2,115 was incurred on repairs.

Coorg.—All Reserved forests are demarcated, and remaining work consists of clearing lines and erecting supplementary pillars. Good progress was made in this work during the year. A considerable amount of demarcation work will probably eventually be required in the Protected forests.

Ajmere.—A large portion of the forests were demarcated, and boundaries, where incorrect, were rectified. A good deal of useful work was also done by clearing lines demarcating village boundaries. Some village lands inside the forests still require demarcation.

Andamans.—Ten miles of lines were cleared, and 12 miles of the Dhani-Khari reserve were permanently demarcated. Five miles of boundaries remained undemarcated.

Baluchistan.—The necessary repairs to boundary marks were carried out by the Forest establishment. No new work was necessary.

Berar.—The boundaries of State forests "A" and "B" are in good order, but those of class "C" require some further expenditure to render them so. Seventy-eight miles of new demarcation was done, and a total expenditure of R1,793 was incurred.

Madras.—A large amount of demarcation work was done, 1,376 miles of new permanent work having been completed, as compared with 2,189 miles in the previous year. The cost per mile amounted to R12-2-5, which is somewhat in excess of the cost during 1895-96. One thousand six hundred and seventy-one miles of preliminary demarcation were also carried out; and clearing of old boundary lines was undertaken over no less than 3,026 miles. The total expenditure during the year on demarcation amounted to R31,000, of which R16,700 were spent on new work.

Bombay.—The following extract from the Bombay Government's review shows the work done during the year—

"The following statement compares the length of boundary demarcated and the cost with the figures of the preceding year :—

Circle.	1895-96.		1896-97.	
	Length, in miles, of boundary lines cleared.	Cost.	Length, in miles, of boundary lines cleared.	Cost.
	Miles.	₹	Miles.	₹
Northern	130½	1,878	260	4,814
Central	669	6,420	2,746	16,917
Southern	124	862	20	3,888
Sindh	176	929	81$\frac{55}{133}$	240

In the Central Circle the work was pushed on as a measure of famine relief, with very satisfactory results, both in the extent of boundary cleared and in the reduction of cost. Progress was made in the Northern Circle, while in Sindh special causes interfered to retard operations. In the Southern Circle the restriction of forest expenditure on account of famine checked the progress of the work in the Belgaum and Dhárwár districts, and only 20 miles are shown in Form No. 48 as having been newly demarcated in the whole Circle; but in Bijapur the preparation of stone pillars for boundaries before laid out was undertaken as a form of famine relief, and ₹3,210 out of the total sum of ₹3,388 expended on demarcation were devoted to that object. None of the reports show how many miles of forest boundary still remain to be demarcated."

IV.—Surveys.

During the year under review, in addition to the Imperial Forest Survey Branch, five full parties of the Survey of India Department and part of a sixth party were employed upon forest survey operations. The tracts operated on by the Survey of India Department were the forest reserves in the Bombay and Madras Presidencies, as well as the forests in Lower Burma and the Central Provinces, and small areas were also surveyed in the Himalayas. The operations of the Imperial Forest Survey Branch were confined to the Central Provinces, Punjab, Upper and Lower Burma.

The total outturn during the year of forest surveys, executed on various scales by the above combined agency, amounts to 4,823 square miles, of which 1,563 square miles were surveyed by the Imperial Forest Survey Branch, in addition to 802 square miles of topographical survey in the Chamba State for incorporation in the 1" standard maps of the Punjab. The area surveyed by the several parties of the Survey of India Department, *viz.* 3,260 square miles, is slightly in excess of that surveyed last year, but the cost-rates in Bombay, Burma, and the Punjab are all higher than usual.

The following tabulated statement exhibits the details and areas on the different scales, as well as the cost-rates, of the several branches of the survey operations :—

Presidency or Province.	Areas surveyed and cost-rates per square mile.																										Total Topographical Surveys.		Total Expenditure in 1896-97.	
	Triangulation.				Traversing.				Detail Survey and preparation of maps on scales of																					
									1″=1 mile.				2″=1 mile.				4″=1 mile.				8″=1 mile.				16″=1 mile.							
	1896-97.		1895-96.		1896-97.		1895-96.		1896-97.		1895-96.		1896-97.		1895-96.		1896-97.		1895-96.		1896-97.		1895-96.		1896-97.		1895-96.					
	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	Sq. m.	R	R
North-Western Provinces and Oudh. *	...	...	392	13	...	...	51	9	...	...	...	...	...	...	...	...	...	...	421	20	...	...	...	...	...	...	...	...	...	421	(a) 2,547	...
Punjab *	...	...	1,165	3	...	...	...	...	802	9	621	12	...	...	...	...	87	30	92	37	...	...	...	...	...	...	...	...	889	713	(b) 11,124	...
	191	30	116	20	...	...	...	...	...	...	...	...	...	...	...	...	191	93	(f) 200	82	...	...	...	...	...	...	...	...	191	200	...	23,493
Burma *	2,235	8	590	7	(d) 357	28	464	19	...	...	...	...	...	...	...	...	268	103	174	92	...	...	...	...	...	...	...	...	268	174	57,253	...
	...	...	638	21	512	82	746	59	...	...	...	...	106	51	111	85	395	170	339	158	...	...	...	...	..	...	...	...	501	450	...	1,14,234
Central Provinces *	327	9	804	11	(d) 35	10	374	7	...	...	...	...	...	...	...	...	1,002	43	1,025	42	...	...	...	...	206	(e) 43	127	42	1,208	1,152	(c) 64,663	...
	1,770	7	1,165	7	(d) 408	8	1,497	14	...	...	...	...	...	...	...	...	697	71	651	81	...	...	...	...	...	...	...	...	697	651	...	89,135
Madras * — No. 9 Party	1,450	(g) 25	...	...	(d) 521	...	...	...	...	...	...	...	...	...	...	...	121	324	...	...	...	...	...	...	...	...	...	...	121	...	...	78,904
Madras * — No. 19 Party	1,000	(g) 17	1,815	(g) 12	(d) 728	...	(d) 820	...	...	...	...	...	...	...	...	...	1,027	65	961	54	...	...	...	...	...	...	...	...	1,027	961	...	87,782
Bombay *	1,376	7	505	5	214	3	314	12	...	...	...	...	...	...	..	...	522	78	829	66	168	136	108	122	33	156	15	130	723	952	...	82,337
Total — Forest Survey Branch	2,562	...	2,921	...	392	...	889	...	802	...	621	...	...	...	...	...	1,357	...	1,712	...	...	...	...	...	206	...	127	...	2,365	2,469	1,35,587	...
Total — Survey of India Department.	5,787	...	4,239	...	2,416	...	3,407	...	...	...	...	...	106	...	111	...	2,953	...	2,983	...	168	...	108	...	33	...	15	...	3,260	3,217	...	4,75,885
Grand Total	8,349	...	7,160	...	2,808	...	4,296	...	802	...	621	...	106	...	111	...	4,310	...	4,695	...	168	...	108	...	239	...	142	...	5,625	5,677	6,11,472	

* Surveys executed by the Forest Survey Branch, the topographical cost-rates of which include expenditure on classification of forests and soils. The other surveys are by the Survey of India Department.

(a) Cost of drawing and publishing the 4″ maps of North-Western Provinces and Oudh.

(b) Includes ₹1,393 on account of drawing and publishing 4″ and 1″ maps of Bashahr and ₹319 for computation charges for Chamba survey.

(c) Includes ₹3,360 on account of drawing and publishing maps of Jubbulpore, Narsinghpur, and Bhandara Divisions and ₹15,553 for levelling operations.

(d) Linear miles.

(e) Average cost of both 4″ and 16″ surveys.

(f) Incorrectly shown in previous year's statement as ₹13.

(g) Includes traversing.

The total expenditure incurred on 2,365* square miles of provincial forest surveys by the Forest Survey Branch was R1,35,587, whilst the Survey of India Department expended a sum of R4,75,885 on the survey of 3,260 square miles of forest reserves, making a total aggregate expenditure of R6,11,472 for the year, as shown in the above statement, against an expenditure of R5,26,983 in the previous year.

* Includes 802 square miles of 1" topographical work in Chamba.

In addition to the regular professional surveys, a large amount of survey work in the way of boundary and compass surveys and the preparation of sketch-maps was done departmentally by Forest officers, more particularly in Burma and Madras.

The following statement gives the areas operated on topographically in connection with the Forest Department by the professional agency of the Forest Survey Branch and the Survey of India Department since 1873 and up to the close of the year under review, and the map of India which is attached locates the areas already dealt with and shows the tracts that still remain to be brought under survey:—

Survey year.	Bengal.		North-Western Provinces and Oudh.				Punjab.		Burma.		Central Provinces.		Assam.	Berar.		Madras.	Bombay.			By Forest Survey Branch.	By Survey of India Department.	Total.
	Scale.		Scale.				Scale.		Scale.		Scale.		Scale.	Scale.		Scale.	Scale.					
	4"	2"	12"	8"	4"	2"	4"	1"	4"	2"	16"	4"	4"	4"	2"	4"	16"	8"	4"			
1873 to 1895-96.	115	...	3	...	4,411	205	1,472	2,940	923	7	823	4,670	613	936	1,221	...	...	...	...	18,349	...	39,097
	537	215	...	215	494	...	1,007	...	2,961	1,157	...	4,134	...	...	...	5,118	207	2,203	2,520	...	20,758	
1896-97	...	...	...	...	...	...	87	802	268	...	206	1,002	...	...	...	...	...	...	...	2,365	...	5,625
	...	...	...	...	...	...	191	...	395	106	...	607	...	...	...	1,148	33	168	522	...	3,260	
Total	652	215	3	215	4,905	205	2,737	3,742 (a)	4,837	1,170	1,029	10,503	613	936	1,221	6,266	240	2,371	3,042			
	867		5,328				6,499		5,807		11,532		613	2,157		6,266	5,653			20,704	24,018	44,723

* Surveys executed by the Forest Survey Branch. The other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor-General and from Annual Reports of the Survey of India Department.

(a) Includes an area of 3,742 square miles on the 1" scale surveyed for topographical purposes.

The above statement shows that a total area of 40,980 square miles, on various scales, has been surveyed for forest purposes, and that an area of 3,742 square miles of intervening tracts has been topographically surveyed to complete the 1" standard maps of the Punjab.

Work done during the year in the various provinces was as follows:—

Bengal.—No surveys were done by professional agency, but 212 miles of boundary surveys of Protected forests were completed by the Land Revenue Settlement Department in the Kolhan Government estate in the Singhbhum Division, and some petty operations, comprising boundary and coupe surveys and surveys of paths and road-traces, were carried out by departmental agency at a cost of R579. Form No. 49 shows that the large area of 3,292 square miles of Reserved forests still remains to be surveyed, but the Government of India hope that the necessary arrangements to complete the survey of all areas for which maps are urgently required will shortly be found feasible.

North-Western Provinces and Oudh.—With the exception of 76 square miles, 73 of which represent the chir forests recently leased from the Tehri-Garhwal Raja, the general survey of all three Circles has been completed by professional agency and the mapping of the forests of the School and Central Circles is also practically finished. The mapping of the Oudh forests is still incomplete, owing chiefly to the pending of settlement of the Nepal-Kheri boundary and the final survey of the alignment of the Tulsipur forest boundary. In the School Circle, a surveyor was employed departmentally in mapping 1,024 acres of *chaks* in the Jaunsar Division and subsequently in correcting the sketch map of the Tehri-Garhwal leased chir forests, where 35 miles of boundaries were surveyed. In Form No. 49 for the Central Circle, an area of

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GANGADHAR MOODLIAR.

4 square miles of Protected forests in the Bundelkhand Division is returned under head of "special surveys," and one square mile in the Naini Tal Division was surveyed by local agency. The total amount expended on these surveys was R994.

Punjab.—In the districts of Kulu and Kangra, and in the Sirmur, Patiala and Kalsia States, a forest area of 191 square miles, and comprising 80 forest blocks, was surveyed on the 4″ scale by No. 18 Party of the Survey of India Department, at a cost-rate of R93 per square mile. The cost-rate is somewhat higher than it was in the previous year. In Chamba, a party of the Forest Survey Branch was at work and completed a topographical area of 889 square miles, 87 square miles of which were surveyed on the 4″ scale for forest purposes, and 802 square miles were surveyed on the 1″ scale for the purpose of completing the standard topographical map of the country. The cost of the 4″ detail survey was R30 per square mile, and the 1″ topographical work cost R9 per square mile. The areas given above are for the Survey year, ending 30th September, and *not* the Forest year.

Burma.—Professional survey parties were at work in both Upper and Lower Burma during the year. No. 20 Party of the Survey of India Department was engaged in surveying forest tracts in the Toungoo, Shwegyin, and Pegu Divisions and completed the following detail areas :—

Three hundred and ninety-five square miles of reserved forests on the 4″ scale at a cost-rate of R170 per square mile, against a cost-rate of R158 in the previous year, and 106 square miles of unclassed forests on the 2″ scale at a cost-rate of R51 per square mile; some traversing in advance was also done. Three detachments of the Forest Survey Branch were also employed in Burma and operated on the reserved forests in the Pyinmana and Ruby Mines Divisions in Upper Burma and the Salween-Attaran Division in Lower Burma. Triangulation was extended over an area of 2,235 square miles in the Salween-Attaran and Ruby Mines Divisions, and 352 miles of traversing was done in the Pyinmana forests. The total area topographically surveyed on the 4-inch scale by this Branch was 258 square miles at an average cost-rate of R103 per square mile. The cost-rate is slightly higher than usual, owing to higher charges for a Deputy Superintendent, as well as a proportionate amount of the Superintendent's pay having been included on account of supervision, yet the cost-rate compares most favourably with the cost-rate of the Survey of India Department, which was R170 per square mile for similar work. The officer in charge of No. 20 Party thus accounts for the high cost-rate of the work of his party—

"The cost-rate, calculated as in former years, shows a small increase, though in reality the work is again cheaper. This is partly explained by the share of supervision, etc., that formerly was taken by the triangulation falling this year on the detail work; and partly by the extra cost of an Assistant Superintendent and probationary Sub-Assistant Superintendent attached to the Party, more for the purpose of training than because they were actually required."

Local officers in Burma completed a considerable amount of compass surveys and prepared a good many skeleton maps which, no doubt, will prove most useful for forest administrative purposes pending the preparation of more accurate maps by professional agency.

Central Provinces.—The surveys in the Central Provinces were in continuation of the previous year. Five detachments of the Forest Survey Branch and No. 14 Party of the Survey of India Department were engaged in the operations. The field operations of the latter Party were confined to the districts of Damoh, Bilaspur and Sambalpur; the detail survey of the forests in Damoh were brought to a close and work was begun in Bilaspur; whilst triangulation and traversing were extended in the Sambalpur and Bilaspur districts. The total outturn of 4″ topography by this party was 697 square miles at a cost-rate of R71. The remaining portion of the work in districts Bilaspur and Sambalpur has been transferred to the Forest Survey Branch for completion. The Forest Survey Branch continued the survey of the reserved forests in the districts of Raipur, Balaghat, Nagpur, Wardah, Chindwara and Saugor. The survey of the forests in Raipur and Balaghat having been brought to a close during the year under review, work was commenced in the districts of Seoni and Bilaspur. The total area topographically surveyed on the 4″ and 16″ scales was 1,208 square miles at an average cost-rate of R13 per square mile, as compared with an area of 1,152 square miles at R12 per square mile in the previous year. The total aggregate outturn of topographical work by the double agency of the Forest Survey Branch and No. 14 Party of the Survey Department was 1,905 square miles against 1,808 in the previous year. Survey work is now completed in the districts of Balaghat, Bhandara and Raipur in the Southern Circle, as well as in the districts of Jubbalpur, Narsingpur and Damoh in the Northern Circle; little remains to be done in Nagpur and Wardah, but an area of about 300 square miles, in addition to the previous survey in the districts of Hoshangabad and Nimar, will have to be mapped when

the work of excision for ryotwari settlement has been completed. The survey of the forests in the districts of Saugor, Seoni, Chindwara and Bilaspur is in progress, and it is expected that survey work will shortly be extended to the districts of Sambalpur, Mandla and Chanda, which are the only districts which remain to be brought under survey.

The Conservator, Northern Circle, complains of the delays that occur in the receipt of forest maps, and in paragraph 25 of his report gives a statement which certainly invites comment. The Forest Survey Branch is only responsible for the mapping of the forests in the districts of Jubbalpur, Narsingpur and Saugor in this Circle, and complete sets of forest maps for the two former districts are now in the hands of the Conservator; the survey of Saugor is still in progress, but the Conservator has already been supplied with 9 sheets of this district. Delays in issuing some of the forest maps are often unavoidable, chiefly owing to the numerous excisions which are constantly taking place for ryotwari settlement and the difficulties and delays which occur in ascertaining and often re-surveying the revised boundaries, and in such cases the map-printing has to be held in abeyance pending the final settlement of the forest boundaries; and this was particularly the case with many of the maps of the Dhanwahi pargana of the Mandla district, which, for administrative purposes, forms part of the Jubbalpur Forest Division and is referred to by the Conservator in his statement under that head. The forests in the districts of Hoshangabad, Betul, Nimar and Damoh were surveyed by the Survey of India Department, and steps are being taken to ascertain the cause of delay in issuing the forest maps of these districts, and which it is hoped will lead to the early issuing of most of the sheets.

Assam.—There is little to record under this head; some minor surveys were undertaken by departmental agency, chiefly boundary surveys. The expenditure charged against surveys during the year was R881. From Form No. 49 it would appear that there is a forest area of 3,148 square miles remaining to be taken under survey.

Coorg.—In this Division, beyond the survey of 7½ miles of roads and 6½ miles of fire-lines, nothing in the way of surveys was done. It is contemplated to put a trained Ranger on the preparation of stock maps, if his services can be made available.

Ajmere.—Arrangements have been made for a rough survey being undertaken to correct certain discrepancies brought to notice in the areas of some of the Merwara forests, and as soon as the survey which is being carried out has been completed, it will be possible to correct the discrepancies referred to, and the Government of India trust that steps will be taken to bring this necessary work to conclusion as speedily as possible.

Baluchistan.—Nothing was done during the year in the matter of surveys.

Andamans.—No actual surveys were done, but as it was necessary to ascertain the localities of light coloured padouk timber suitable for extraction from the forests, the padouk tracts were examined, located and plotted on the existing maps. The navigable channels on the east coast from Shoal Bay to Long Island were also examined and plotted on the existing map.

Berar.—No surveys to record during the year, but good progress was made in the publication of 1″ maps compiled for the most part locally from 8″ settlement maps of Berar, and re-drawn and published under the direction of the Superintendent of Forest Surveys at Dehra Dun.

Madras.—An additional survey party was transferred to Madras during the year to expedite the survey of the forest reserves in that Presidency, maps of which are required as soon as possible. Hence two full parties, *viz.* No. 9 and No. 19, of the Survey of India Department, were engaged throughout the year on surveying and mapping the Madras forests. The two parties completed the topographical survey of 1,148 square miles on the 4″ scale, of which 811 square miles were reserved forests, as compared with 964 square miles surveyed in the previous year by Party No. 19. The cost-rate per square mile of topography by No. 19 Party was R65 and the triangulation and traversing cost R17 per square mile, giving a total cost of R82 per square mile, as compared with R66 in the previous year. The cost-rates are in excess of the past four years, which is due to various causes, the principal one being the difficult nature of the country combined with the density of the forests in the Kurnool District. The Conservator remarks that it is very improbable that the cost per mile will, as long as the party is employed in such difficult country, fall to the previous low rate of R66. The outturn of topography by the second Survey Party No. 9, employed in Madras, was very small and the cost-rate of the work was abnormal, it having reached the very high figure of R349 per square mile, *viz.* R324 for detail survey and R25 per square mile of triangulation. The abnormally high rate is partly attributed to the inefficiency of the subordinate staff and to the heavy cost for the transfer of the party from the Central Provinces for work in Madras, as well as to unfavourable weather but it is hoped by the Government of India that the steps which are being

taken to ensure the more efficient working of the survey in future will considerably reduce the expenditure. Much has been done departmentally in the way of boundary and other surveys, and in the matter of keeping the existing maps up to date, which is noticed with satisfaction.

Bombay.—In continuation of the previous season's operations, No. 17 Party of the Survey of India Department was employed in surveying the reserved forests in all three Circles. The work comprised the detail survey on the 8" scale of teak reserves in the Thana district; the completion of 4" detail survey in the Poona district; the 8" survey of teak reserves; the 4" survey of ordinary forest reserves; the 16" survey of babul reserves in the Ahmednagar district; and the detail survey on the 4" scale in North Kanara. The total area topographically surveyed amounted to 723 square miles; as compared with 952 in the previous year, which shows a considerable falling off in the matter of outturn of area, and it is also noticeable that the average cost-rate per square mile on all three scales of 4, 8 and 16 inches to the mile are considerably in excess of the previous year's work, as will be seen from the following statement, which exhibits the areas and cost-rates for 1895-96 and 1896-97, as given in the Survey of India reports.

1895-96.			1896-97.			Difference in cost per sq. mile.
Scale.	Area, in sq. miles.	Cost-rate per sq. mile.	Scale.	Area, in sq. miles.	Cost-rate per sq. mile.	
		R			R	R
4"=1 mile . .	829	66	4"=1 mile . .	522	78	12
8"=1 mile . .	108	122	8"=1 mile . .	168	136	14
16"=1 mile . .	15	130	16"=1 mile . .	33	156	26
TOTAL .	952	...	TOTAL .	723	...	...

The cost-rate of the 16" work has been commented on by the Survey Commissioner and Director, Land Records and Agriculture, and he remarks that "the work was done by junior men and should have been more closely supervised."

In Sindh there is little to record under head of surveys; the riverain survey has been completed and the maps have been found to be most useful.

V.—WORKING-PLANS.

Considerable progress has been made during the year in the preparation of working-plans. In the North-Western Provinces and Oudh, 5 plans dealing with an area of 1,345 square miles were sanctioned, bringing the total area under organized working to 3,301 square miles, or 83 per cent. of the whole forest area. Excellent progress has also been made in both the Northern and Southern Circles of the Central Provinces. In the former Circle, although no plans were actually sanctioned, a large amount of excellent work was accomplished, and the next few years will show a large increase to the area under working-plans. In the Southern Circle, 11 plans for an area of 1,633 square miles were sanctioned, and plans dealing with a further area of 3,553 square miles were under preparation. In Burma much work remains to be done, more particularly in Upper Burma, where valuable teak forests are year by year being added to reserves.

Of the total forest area in the Bengal Presidency, as it stood at the close of the year (79,995 square miles), working-plans are now in force over 13,737 square miles, or 17 per cent. This area is covered by 83 working-plans, showing that the average area dealt with in each plan is about 166 square miles. Ten years ago, in 1886-87, the number of plans in force was 6, and the area covered by them was 339 square miles. During that year 5 plans, with an area of 230 square miles, were sanctioned, and 12 plans, with an area of 644 square miles,

were submitted to the Inspector-General of Forests for his opinion. During the year under notice 21 plans for 3,479 square miles were sanctioned, and 28 plans for 4,706 square miles were submitted for the opinion of the Inspector-General of Forests. In addition to this, preliminary proposals for 27 plans, dealing with 3,904 square miles, were examined in the Office of the Inspector-General of Forests. From this it is evident how great the progress made has been, and it is satisfactory to observe that at the same time a considerable improvement has been attained in the character of the plans proposed, which are now much more simple and more practical than those which were first prepared.

As regards the due observance of the provisions of existing plans, it may be said that they are more and more strictly carried out as experience and a properly trained executive staff enables the controlling officers to better carry out the works laid down. There is little to find fault with in this respect, and though, with the increase in the number of working-plans, the work of control in the Office of the Inspector-General of Forests becomes heavier year by year, the fact that the plans are better worked up to, and that the control forms are better prepared than was formerly the case, has hitherto prevented undue pressure. The following Forms show for the provinces in the Bengal Presidency (A) the area brought under sanctioned working-plans up to the close of the year; (B) the progress made in the preparation of working-plans during the year; and (C) a comparison of the work done with that still remaining :—

(A)

Areas brought under the control of sanctioned Working-Plans up to 30th June 1897 in the provinces of the Bengal Presidency.

Provinces.	Forest Area, in square miles.				Area for which working-plans were prepared and sanctioned up to 30th June.	Proportion of forest area under sanctioned working-plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Square miles.	Per cent.
Bengal	5,876	3,378	4,034	13,288	(a)4,250	32
North-Western Provinces and Oudh.	3,822	94	43	3,959	(b)3,301	83
Punjab	1,681	2,877	2,253	6,816	(c)696	10
Burma (Lower)	7,250	...	...	7,250	1,503	21
Burma (Upper)	6,808	...	...	6,808	37	1
Central Provinces	19,258	...	352	19,610	(d)2,441	12
Assam	3,631	...	11,244	14,925	633	4
Coorg	238	650	...	888	116	13
Ajmere	139	...	10	149	139	93
Baluchistan	170	...	...	170	...	...
Andamans	85	...	1,868	1,953	...	...
Berar	4,179	...	...	4,179	721	17
Total	53,187	6,999	19,809	79,995	13,737	17

N.B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement on page 2.

(a) In 1895-96 this was shown as 4,309 square miles; it has now been reduced to 4,250, as 59 square miles were transferred to the Civil Department for cultivation during 1896-97.

(b) Last year this figure was 2,290 square miles; during 1896-97 it was reduced to 2,283 by rectification, and increased by 1,018 square miles (=3,301 square miles) for newly sanctioned plans. In addition 327 square miles of old areas, which have already been accounted for, were revised and sanctioned during the year.

(c) Excludes 32 square miles (Changa Manga plan) of old areas now revised; also 1 square mile reduced by rectification.

(d) At the close of 1895-96 the area was 794 square miles, and during 1896-97 14 square miles were added by rectification and 1,632 square miles for new working-plans, making a total of 2,441 square miles.

(B)

Progress made in Working-Plans in the provinces of the Bengal Presidency during 1896-97.

Province.	Preliminary proposals submitted to the Inspector General of Forests for Working-Plans.		Completed plans submitted for opinion and remarks of Inspector General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
		Square miles.		Square miles.		Square miles.
Bengal	1	183	2	224	...	...
North-Western Provinces and Oudh	2	71	4	(a)918	5	(a)(b)1,345
Punjab	2	366	5	(c)296	2	(d)177
Burma (Upper)	1	79	...	...	1	37
Burma (Lower)	8	451	1	148	1	148
Central Provinces	9	2,176	14	2,976	11	1,633
Berar	...	...	1	5	...	...
Coorg	3	439	...	...	...	...
Ajmere	1	139	1	139	1	139
TOTAL	27	3,904	28	4,706	21	(e)3,479

(a). Includes 264 square miles of old working-plans (Palani-Kohlri 113 and Ganges working-circle 441) now revised.

(b). Also includes 73 square miles (Hilspur working-plan) already dealt with in the Bhira range working-plan.

(c) Includes 243 square miles of old working-plans (Upper Ravi 111 and Changa Manga 32) now revised.

(d). Includes 32 square miles of Changa Manga working-plan now revised.

(e) Includes 389 square miles of old areas for which new plans have now been made; the actual progress for new areas is therefore 3,479—389 = 3,129 square miles.

(C)

Comparative Statement of progress made in Working-Plans during 1896-97.

Province.	Areas for which Working-Plans have been completed and sanctioned.		Area for which Working-Plans are being compiled.		Areas for which Working-Plans have still to be taken in hand.	Total forest area, as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	
Bengal	(a)4,250	...	407	...	8,631	13,288	(a) Last year the area was 4,309 square miles, of which 59 square miles were transferred to the Civil Department for cultivation during 1895-97.
North-Western Provinces and Oudh. — Central Circle	(d)896	(b)574	(c)14	(c)25	318	1,827	(b) Garhwal plan, 427 square miles, plus 147 square miles on account of new areas in Ganges plan. The areas of the old Ganges Plans (Palain-Kohiri, 113 square miles and 141 square miles, Ganges Working-Circle) are already shown in column 2.
Oudh „	957	(e)149	...	...	138	1,244	(c) Excluding old areas now being revised and already included in column 2.
School „	(f)430	295	...	...	163	888	(d) According to last year's statement this should be 901, but during 1896-97 the area of the Kumaun working-plan was reduced by 3, and the Lansdowne plan by 5, square miles.
Punjab	(g)551	(h)145	1,624	479	4,017	6,816	(e) Excluding 73 square miles (Hirapor working-plan) sanctioned during the year, as this area forms part of the general plan for the Bhira range forests included in column 2.
Burma (Lower) — Pegu Circle	1,023	...	...	21	2,065	3,109	(f) In 1895-96 this was shown as 420; it has now been increased by 1 square mile, owing to rectification of area in the Debra Dun forests.
Tenasserim Circle	332	148	...	150	3,511	4,141	(g) Similarly this should be 552, but the area was reduced by 1 square mile on account of rectification in Bahahar.
Burma (Upper) — Eastern Circle	...	37	...	66	2,508	(i)2,611	(h) Excluding 32 square miles (revised Changa Manga plan) sanctioned during the year but already included in column 2.
Western „	...	...	...	...	4,197 (m)	(i)4,197 (m)	(i) These are reserved areas only and exclude 13,566 and 46,103 square miles, respectively, of forests which have been afforded protection under the regulations as a preliminary to being reserved.
Central Provinces — Northern Circle	...	...	4,186	2,494	3,008	9,688	(j) Includes 11,244 square miles of unclassed forests for which working-plans are not required at present.
Southern „	(n)808	1,633	2,890	668	3,928 (j)	9,922	(k) Excludes 26 square miles of pasture reserves which are not to be organized.
Assam	533	...	...	...	14,392	14,925	(l) The Conservator states that these figures represent area of forests as scaled, and, therefore, they will not compare with figures in Form No. 46.
Berar	721	...	4	...	3,454	4,179	(m) Includes 1,780 square miles marked out for nyotwari and 16 square miles of unclassed forest for which no working-plan is required.
Coorg	116	...	57	29	686	888	(n) Increased by 14 square miles owing to rectification of area.
Baluchistan	...	...	...	...	170	170	(o) According to last year's statement this should be 10,670, but during 1896-97 it was reduced by 53 square miles by transfers, etc., see (a), (d), (f), (g) and (n).
Andamans	...	...	...	...	1,953	1,953	(p) Excluding 359 square miles of old areas revised and sanctioned during the year but already accounted for in column 2, see (b), (e) and (h).
Ajmere	...	139	...	...	10	149	
Total Bengal Presidency	(o) 10,617	(p) 3,120	9,182	3,927	53,449	79,995	
Madras Presidency.‡ — Northern Circle	52	...	718	...	5,789	6,559	
Central „	78	103	...	15	6,663	6,859	
Southern „	53	31	12	24	5,369	5,489	
Total	183	134	730	39	17,821	18,907	
Bombay Presidency.‡ — Northern Circle	586	...	...	45	(l)779	(l)1,390	
Southern „	682	...	91	221	(k)4,258	(k)5,252	
Central „	888	...	1,552	326	3,598	6,364	
Sindh „	...	...	...	...	1,065	1,065	

‡ *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

Details of work done in the various provinces are given below.

Bengal.—No new plans were sanctioned during the year, but plans dealing with the Tista valley, the Tista Division and the Jalpaiguri forests, in all an area of 407 square miles, were practically completed. The area of reserved forests still to be taken in hand stands at 2,932 square miles, of which large areas in Chittagong and Palamau are not in immediate need of being placed under systematic plans.

North-Western Provinces and Oudh.—Nearly all the forests in these provinces are now under sanctioned working-plans. There remain only 619 square miles to be dealt with, situated chiefly in the Bundelkhand, Jaunsar and Gonda Divisions. It has been decided that in Bundelkhand no plan is at present required. In Gonda and Jaunsar arrangements have already been made to prepare plans; so that ere long all plans required for settled forests will have been completed. The revision of existing plans, as well as the preparation of new plans for newly settled areas, will however continue to need attention.

Punjab.—A working-plan for the Kalachitta forests in Rawalpindi, area 145 square miles, was sanctioned and plans were in hand for the Kaghan and Kulu protected forests, the Simla Municipal forests, the Mailsi, Kabirwala and Montgomery forests. The working-plans for Kalesar and Changa Manga were under revision, and the revised plan for the latter was sanctioned during the year. Of the reserved forests, only 603 square miles now remain to be dealt with, but there are 1,287 square miles of protected and 2,127 square miles of unclassed forests which still require to be taken in hand.

Burma.—The following extract from the Burma Government's Resolution on the forest reports fully summarizes the work of the year:—

"A working-plans party was employed in the Tenasserim Circle during the year and collected data for the Kyaukmasin and Saing-Yané reserves. The working-plan for the West Swa, Lonyan, and Sabyin reserves was sanctioned during the year, as were the proposals for the systematic working of teak in the unreserved forests of certain divisions of the Pegu Circle. A working-plans party commenced work in the Pyinmana forests and completed the field operations in connection with the Yeni *reserve*. A working-plan for the Mohnyin reserve in the Katha Division, which was prepared by the Divisional Officer, was also sanctioned during the year. In their orders on last year's report the Government of India advised that all available resources of the province for the preparation of working-plans should for some years be concentrated on the leased forests of Upper Burma. If this recommendation is adopted, the working-plans party now employed in the Tenasserim Circle will be transferred to Upper Burma at the close of the present working season. While recognizing the need for working-plans in Upper Burma, the Lieutenant-Governor is not fully satisfied of the expediency of postponing such operations indefinitely in Lower Burma. He proposes to consider the question further at the end of the present working season. In view of the approaching expiry of the leases of the Chindwin forests, at present held by the Bombay-Burma Trading Corporation, the question of the future administration of the forests was considered during the year of report. It was decided that they should be examined as thoroughly as possible during the present camping season, with a view to obtaining an estimate of the timber probably available for extraction. This examination is now being carried out."

Central Provinces.—Excellent progress was made in both the Northern and Southern Circles. The Government of India in their review on the forest administration of the year remark:—

"The progress made in the preparation of working-plans is noticed with particular satisfaction. In the Southern Circle, plans dealing with an area of 1,633 square miles were sanctioned during the year, and plans for a further area of 3,553 square miles were under preparation. In the Northern Circle, although no plans were actually sanctioned, a large amount of excellent work has been completed, and it is clear that the Conservator will shortly succeed in placing all the forests of his Circle, so far as this is required, under systematic plans of management. Form No. 50, showing the progress made in working-plans, has now been prepared in accordance with the instructions given in paragraph 4 of the Government of India's review of the forest reports for 1895-96, and shows the state of affairs much more clearly than in previous years."

Assam.—Of the total area of reserved forests—3,632 square miles—533 only are under working-plans. Of this area 522 square miles is in Goalpara, where hitherto it has not been found possible to work out the number of trees available under the plan. The only new work of the year was the preparation of a scheme, auxiliary to the Goalpara plan, to regulate the removal of trees other than sal; this was in hand at the close of the year and has since been sanctioned.

Coorg.—The Government of India remark:—

"Although Form No. 50 shows that no new working-plans were sanctioned during the year, a considerable amount of work has been done under this head, and it is noticed with satisfaction that plans dealing with an area of 86 square miles were practically completed during the year. The plan for the sandalwood areas is still awaited. The cost of completed working-plans, to which attention was drawn in the Government of India's orders on the Forest Administration Report for 1895-96, is now calculated to be R64 per square mile, instead of R138 per square mile as incorrectly entered in the report for that year."

Working-plans for the Arkeri, South Dubare, and Devamachi forests were completed, but not sanctioned during the year, and it is hoped that the whole area of reserved forest will shortly be worked under working-plans.

Ajmere.—The revision of the original working-plan, which had been found unsuitable, was undertaken and completed during the year.

Baluchistan.—Nothing was necessary under this head.

Andamans.—Some preliminary work was done in the examination and plotting on the map

of areas of padouk, evergreen and mixed forests, the examination of navigable channels, and the enumeration of padouk trees and their classification into sound and unsound, good and bad coloured trees. The observations taken tend to show that 51 per cent. of the mature trees are unmarketable owing to unsoundness or defects, 9 per cent. are marketable, but of inferior colour, whilst 40 per cent. alone are marketable trees of good colour.

Berar.—A working-plan for the Akola babul tract of 4 square miles was completed. A large amount of work was carried out in the preparation of provisional plans which were being compiled for an area of 2,172 square miles. All the forests in Berar will shortly be worked under permanent or provisional plans of working.

Madras.—The Government of India in their review remark—

"Some progress has been made in the preparation of working-plans, which were completed during the year for an area of 317 square miles; plans for an area of 769 square miles were under preparation at its close. With surveys and settlement work still incomplete, rapid progress in this direction can perhaps scarcely be expected. But wherever surveys have been completed and maps have been prepared, it is hoped that the importance of working the forests under carefully considered schemes of management will be kept prominently in view and working-plans pressed on."

In the Madras Presidency an area of 17,821 square miles still remain to be taken in hand.

Bombay.—The progress made is thus noted in the Bombay Government's Resolution—

"In the Northern Circle, working-plans were completed for the Godhra, Máhim, Bassein and Váda forests, and the plans for five other forest ranges were under consideration or preparation; in all 20 per cent. of the total forest area is under sanctioned working-plans. 1,184 coupes were marked out on the ground, and this work is being carried on in advance of requirements.

The progress made in the Central Circle is not clearly shown in the report; but from Form No. 50 it appears that, while plans for an area of 1,878 square miles have been taken in hand, none were actually completed during the year. The Conservator states that 42 per cent. of the whole area is under detailed treatment by means of provisional working-plans; the area under sanctioned plans is, however, less than 14 per cent. His Excellency the Governor in Council recognises the difficulties attendant on the rapid completion of the demarcation of compartments, but must insist that no effort be spared with the establishment available to carry out in their entirety the views of this Government and the Government of India as detailed in paragraph 5 of letter No. 950—173-5 F. of October 14th, 1897, from the latter Government.

In the Southern Circle two parties were at work, and made satisfactory progress in the collection of data for future plans. The area under sanctioned plans amounts to 13 per cent. of the whole.

In Sindh a beginning was made in the preparation of working-plans; though impeded first by demarcation work, which was under the same officer, and subsequently by the plague; fair progress was made in the Sukkur Division."

VI.—Communications and Buildings.

A total expenditure of R1,64,900 was incurred upon roads and bridges, as against R1,43,800 in the previous year. Of this amount R75,000 were expended in the construction of new roads, chiefly in Bengal, North-Western Provinces and Oudh, Berar and Madras. In the latter Presidency commendable activity in opening out communications is to be observed, R30,000 having been spent on new roads, as against R12,000 in the previous year. The chief work was in the Southern Circle, where some important roads were constructed in North Coimbatore. Nearly R90,000 were expended on the repair of existing communications. As usual, the largest expenditure was incurred in the North-Western Provinces and Oudh, where R34,000 were required to keep the roads in order. Of this sum R19,500 were spent in the Central Circle, where the roads were generally much damaged by heavy rainfall.

Under tramways, there is little of interest to add to the remarks made in the Review for the year 1895-96. The existing tramways in the Punjab, Andamans and Madras continued to yield useful service. In this connection it is observed that the working of the tramway in South Coimbatore is stated to have resulted in a loss of R22,973, as compared with what the cost would have been if country carts had been employed. But it appears that without the tramway the wood could not be exported at all, carts not being available or very deficient in number. Under such circumstances, calculations of the

kind are meaningless, and it would be more correct to credit the tramway with the net profit which has been realized from the sale of the otherwise unexploitable wood.

On buildings a total expenditure of ₹2,61,000 was incurred, of which ₹1,81,000 were spent on new buildings. The principal expenditure was in Upper Burma, where the construction of rest-houses for officers and of quarters for subordinates received considerable attention. The total expenditure on communications and buildings amounted to ₹4,26,000, as against ₹3,96,700 in the year 1895-96. The details of expenditure in the various provinces under new work and repairs are shown in the following table:—

Province.	New Work.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	R	R	R	R	R
Bengal	12,407	10,480	10,132	14,226	47,245
North-Western Provinces and Oudh	21,899	13,832	13,164	34,477	83,372
Punjab	13,004	1,271	4,771	2,346	21,392
Burma (Lower)	25,450	543	3,967	1,522	31,482
Burma (Upper)	42,249	1,037	4,789	600	48,675
Central Provinces	9,389	1,192	4,580	2,748	17,909
Assam	3,372	568	7,751	2,130	13,821
Coorg	2,580	609	647	1,886	5,722
Ajmere	21	307	52	24	404
Baluchistan	124	150	124	...	398
Andamans	161	24	448	2,452	3,085
Berar	2,290	7,469	3,154	5,749	18,662
Total Bengal Presidency	1,32,946	37,482	53,579	68,160	2,92,167
Madras Presidency	29,134	30,252	19,208	17,016	95,610
Bombay Presidency	19,139	7,421	7,112	4,636	38,308
Grand Total	1,81,219	75,155	79,899	89,812	4,26,085

The details of work done in the various provinces are as follows:—

Bengal.—The following statement contrasts the expenditure of the year with that of 1895-96:—

Nature of work.	Buildings.		Roads and Bridges.		Total.	
	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.
	R	R	R	R	R	R
New construction	18,507	12,407	14,133	10,480	32,640	22,887
Repairs	8,929	10,132	9,317	14,226	18,246	24,358
Unapportioned	571	664	1,011	441	1,582	1,105
Total	28,007	23,203	24,461	25,147	52,468	48,350

The expenditure was thus R4,118 less than in the previous year. No expensive buildings were constructed. The chief works were the completion of rest-house at Mamrim in Darjeeling, and the construction of a bungalow at Bamanpokri in Kurseong at a cost of R1,776. New buildings were commenced at Kuntimari in Jalpaiguri and at Ranamundle in Angul. The Darjeeling cutcherry, in which the offices of the Conservator and of the Divisional officer were located, was burnt down. Seventy-two miles of new roads were constructed at a cost of R10,480. Of these 34 miles were in the Darjeeling Division, 11 miles in Singhbhum and 41 miles in Palamau.

North-Western Provinces and Oudh.—The nature and cost of the works executed under this head are summarized and compared with the results of the previous year in the following table :—

Circle.	Roads and Bridges.		Buildings.		Other works.	Total.	Percentage in gross expenditure.
	New works.	Repairs.	New works.	Repairs.			
	R	R	R	R	R	R	R
Central . . .	*8,916	19,509	7,572	3,106	1,407	40,510	13·34
Oudh	1,649	8,019	8,263	5,091	3,742	26,754	10·12
School	3,267	6,949	6,074	4,967	2,407	23,664	7·72
Total .	13,832	34,477	21,899	13,164	7,556	90,928	10·40
Total, 1896-97 . .	48,309		35,063		7,556	90,928	10·40
Total, 1895-96 . .	54,158		47,787		6,356	1,08,301	11·62

* The actual cost was R8,916, but of this sum R2,894 (on the construction of the Dhanour-Kathol cart-road) was charged in the accounts of 1897-98.

The above statement shows that same R18,000 less were expended on communications and buildings than in the previous year. The difference occurs mainly in the Oudh Circle under "New buildings," which show an expenditure of R8,253 only for 1896-97, as compared with R22,773 in the previous year.

The Local Government remarks—

"The smallest expenditure on buildings would appear to occur in the Central Circle, which, on the other hand, spends largely on communications. The up-keep of its roads and bridges absorbed R19,509 during the year under review, as compared with R26,294 in the previous year. This outlay is explained by the mountainous and less accessible character of the bulk of the Central Circle forests, and by the higher rates for labour which there prevail."

Punjab.—The following statement contrasts the expenditure with that of the previous year :—

Year.	Roads and Bridges.			Buildings.			Percentage to gross income.
	New work.	Repairs.	Total.	New work.	Repairs.	Total.	
	R	R	R	R	R	R	R
1895-96 . . .	1,408	2,260	3,668	6,423	3,364	9,787	1·4
1896-97 . . .	1,271	2,346	3,617	13,004	4,771	17,775	2·0

The expenditure on roads thus remained much the same ; 37 miles of new roads and paths were constructed and 4¼ miles were repaired, chiefly in the hill divisions, where much damage is done to the roads by storms and landslips. Under buildings the increase of R8,000 is due to the construction of a new forest office at Abbottabad at a cost of R8,500. The buildings at Pakka Mari, Lyallpur, and at Bela Thatha Faqirulla in Chenab were completed. Rest-houses at Langera in Chamba and at Mastgar in Kangra were completed. A number of outhouses, rangers' quarters and huts for forest guards were also completed. There still remains much work to be done in providing suitable quarters for subordinates.

Burma.—The expenditure incurred was as follows :—

Circle.	Roads and Bridges.		Buildings.	
	New work.	Repairs.	New work.	Repairs.
	R	R	R	R
Pegu	543	1,188	20,109	2,952
Tenasserim	...	334	5,341	1,015
Total Lower Burma	543	1,522	25,450	3,967
Eastern	792	115	29,288	2,065
Western	245	485	12,961	2,724
Total Upper Burma	1,037	600	42,249	4,789
Total Burma, 1896-97	1,580	2,122	67,699	8,756
Total Burma, 1895-96	1,785	2,091	55,304	8,859

In the Tenasserim Circle, rest-houses were built at Bôndaung (R800), Mepat (R425) Tamagwe (R450), and several quarters for subordinates were in hand. A considerable amount of blasting work was done in the Bôn stream, which was cleared of boulders over ¼ of a mile at a cost of R793. One thousand and eighty-nine rupees were also expended on blasting operations in the Tavoy river in the South Tenasserim Division. In the Pegu Circle, a forest bungalow was constructed at Pegu at a cost of R9,966, and subdivisional officers' quarters at Zigôn (R4,342), and Tharrawaddy (R4,361). A forest office was built at Bassein (R1,500). Rest-houses were built at Thègôn (R500), Waing (R600), and Kyetpaung (R300). A good deal of blasting work was carried out in the feeders of the Taungnyo stream, and R2,692 were expended. The lower reaches of the same stream were also cleared at a cost of R410.

In the Eastern Circle, Upper Burma, rest-houses were built at Nampu (R300) and at Kayon (R512) in the Bhamo Division. In Katha R3,543 were spent on new buildings, of which the most important were a forest office at Mogaung (R2,550) and rest-houses at Nam, and Mawhun (R1,000). A new rest-house (R1,200) was built at Bernardmyo orchard in the Ruby Mines Division, and R1,728 were spent in re-building the sub-divisional house, office, etc. at Mogôk. Only in Katha was any expenditure on roads incurred. Rupees 750 were spent in rendering the road between Nyaungbinseik and Mantôn passable for elephants. In the Western Circle, the chief buildings constructed were a forest office at Mônywa (R4,650) and a sub-divisional house and office at Gangaw (R3,560). The expenditure on roads (R730) was incurred principally in the Upper Chindwin, where the path from Sinlamaung to Nankara was nearly completed.

Central Provinces.—The expenditure of the year contrasted with that of 1895-96 was as follows :—

Year.	Buildings.		Roads and Bridges.		Total.
	New work.	Repairs.	New work.	Repairs.	
	R	R	R	R	R
1895-96	15,511	4,157	3,027	4,823	27,518
1896-97	9,389	4,580	1,192	2,748	17,909

There was thus a falling off in expenditure of nearly R10,000. In the Northern Circle 59 miles of new roads were made, and 198 miles were repaired at a cost of R402 and R729, respectively. Sixty-seven miles of roads were in addition constructed as famine relief works. Forty new buildings were constructed at a cost of R4,093, whilst R2,005 were spent on repairs. In the Southern Circle 38 miles of new roads costing R790 were made, and R1,935 were spent on repairs. One hundred and thirty-eight new buildings, chiefly rangers' and forest guards' quarters, were constructed for R4,861.

Assam.—The total expenditure, including other works, was R15,210, compared with R21,971 in 1895-96. Eight miles new roads were made in Goalpara at a cost of R417. In Kamrup fifteen new bridges were constructed on the Barbakra road. The roads and bridges in the Kamrup and Garo Hills Divisions were very much damaged by the earthquake.

On new buildings the sum of R3,372 was expended; the principal buildings were—addition to Dhubri bungalow (R719), inspection bungalow at Jamdnar (R489) and rangers' quarters at Kochugaon (R282). A large amount of damage was caused in the Kamrup and Garo Hills Divisions, and most of the buildings were demolished by the earthquake. It is estimated that they cannot be replaced for less than R20,000. The bungalow at Tezpur was burnt down by an incendiary.

Coorg.—The amount spent was much the same as in the previous year. Fourteen miles of new roads were made in the South Coorg Sub-division and two new bridges were constructed over the Kalhalla and Nagerhole streams. The Dubaré rest-house was completed at a cost of R1,376; a guard's hut at Murkal and a forester's hut at Tittimatti were also constructed.

Ajmere.—A complete system of roads to tap the forests of North Todgarh has been drawn up and sanctioned; 12 miles were constructed during the year at a cost of R295. A forest guard's hut was built at Mir Shah Ali (R21), and the quarters which were under construction for the Forest Officer at Ajmere were completed by the Public Works Department during the year.

Baluchistan.—Nearly 1 mile of paths was constructed in the Zangi Lora plantation, and the path leading through the North Zargun State forest was extended by 6 miles. New quarters were built for the forester of the Ziarat range for R124.

Andamans.—The Local Government remark—

"The total expenditure on communications and buildings amounts to R3,085, against R2,428 in the previous year. The roadway and tram-line from Kadakachang through the Wimberley Ganj Valley to the Goplakabang creek cost R1,606. The up-keep of the 6¼ miles of tram-lines cost R846. A new barrack was constructed at Bajajag and three guard-houses for police when employed on protective duty. All existing barracks and other buildings were kept in repair."

Berar.—The Commissioner in his review of the Forest Report says—

"The expenditure on roads increased from R7,625 to R13,218, while that on buildings decreased from R6,203 to R5,444. Eleven new wells were sunk at a cost of R1,142 and a few old ones were cleaned at a cost of R138. The expenditure incurred on petty works amounted to R459. The total amount expended was R20,401 against R15,058 in the preceding year, the increase being chiefly due to a larger expenditure on roads. All available funds were utilized for making roads in order to provide work for labourers during the scarcity."

Madras.—The following shows the expenditure of the year compared with that of the year 1895-96:—

	1895-96.	1896-97.
	R	R
Roads and bridges	28,313	47,268
Buildings	41,108	48,342
Other works	2,662	4,223

There was thus a large increase in the expenditure under roads. In the Northern Circle the expenditure on roads was R12,738 chiefly in Kistna, Godavari and Kurnool. In Godavari 10 miles and in Kistna 38 miles of new roads were made. In the Central Circle R7,398 were spent. Three-and-a-half miles of new road were made in Cuddapah for R1,685. In North Arcot the new Peddur Ghat road was continued, and two new roads in Salem were made. In the Southern Circle R27,132 were spent chiefly in North Coimbatore, where 20 miles of the Gundila Valley road were opened out at a cost of R7,000, and 9½ miles of bridle road were made. A masonry bridge on the new Papanasam road was commenced and R2,482 spent on it during the year. In North Malabar 10 miles of new roads were constructed. Under buildings the chief new works constructed were—

Northern Circle.—Construction of rest-houses in the Agency tract of Godavari, 7 new range camps in Kistna and a rest-house at Bukkapatnam in Anantapur.

Central Circle.—Some rest-houses in Chingleput and Salem. The bungalow at Dugarazpatnum was purchased from the Public Works Department for R2,000.

Southern Circle.—A rest-house at Muthabaruttu in Tinnevelly; a rest-house at Punachi, and a workshop for the saw-mill in South Coimbatore; some rest-houses and a range office in North Coimbatore. In South Coimbatore ⅛th of a mile were added to the tramway, which now runs over 4⅛ miles.

Bombay.—The following table gives the expenditure incurred by Circles:—

Circle	New Work.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	R	R	R	R	R
Northern	1,846	2,005	1,809	689	6,349
Central	4,377	...	1,744	817	6,938
Southern	12,794	5,416	3,224	3,130	24,564
Sindh	122	...	335	...	457
TOTAL .	19,139	7,421	7,112	4,636	38,308

There was thus a total expenditure of R38,308, as against R19,215 in the previous year.

In the Northern Circle a rest-house was built at Kogda (R116) and 16 houses for subordinates were constructed; 3 forest posts were built in the Panch Mahals and a well was sunk at Kandalpada.

In the Central Circle, a forest office was built at Nevasa in the Ahmednagar Division (R2,164), and R1,442 were spent on alterations and additions to existing buildings.

In the Southern Circle, 9 forest houses were partly constructed in North Kanara and R7,487 spent during the year. Other chief works were a saw-mill shed (R1,067), a forest office at Siddapur, and the construction of 6 wells in South Kanara.

In Sindh there was no work of importance.

Under roads, 50 miles of new roads, chiefly in Surat, were made in the Northern Circle at a cost of R1,048. In the Central Circle there was no new work. In the Southern Circle two important new roads were made from Barchi to Nana-Kesrodga, 6 miles (R2,620), and from Bilki to Siddalgundi, 6 miles (R2,343).

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

There has been a considerable decrease in the number of cases of breaches of the forest laws taken into Court, as will be seen from the following table. The percentage of convictions has been maintained above 80 per cent. Offences compounded show still in the Bengal Presidency a larger percentage of all cases taken cognizance of than in either Madras or Bombay. However, there seems to be a tendency in the latter Presidencies to make greater use of this more lenient method of dealing with forest offences.

Province.	Number of cases taken into Court.		Number of cases compounded.		Total.		Proportion of convictions to the total number of cases decided by the Courts.	
	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.
							Per cent.	Per cent.
Bengal	279	264	1,158	1,163	1,437	1,427	87·8	89·7
North-Western Provinces and Oudh	134	125	481	637	615	762	76·8	84·0
Punjab	1,009	1,058	2,393	2,317	3,402	3,375	79·2	81·3
Burma (Lower)	301	434	1,890	2,158	2,191	2,592	82·4	88·7
Burma (Upper)	180	389	413	428	593	817	80·5	75·1
Central Provinces	346	372	4,156	4,285	4,502	4,657	80·6	80·7
Assam	93	122	249	311	342	433	86·0	81·1
Coorg	10	8	100	130	110	138	90·0	62·5
Ajmere	31	46	129	25	210	71	97·5	100
Baluchistan	40	79	246	7	286	79	65·0	90·3
Andamans	5	1	...	...	5	1	100	100
Total	2,478	2,899	11,215	11,461	13,693	14,552	81·3	82·1
Berar	148	95	743	618	891	713	80·4	77·9
Total Bengal Presidency	2,626	2,986	11,958	12,079	14,584	15,065	81·4	81·9
Madras	4,025	3,862	5,793	4,531	9,818	8,393	83·3	79·4
Bombay	2,127	2,632	5,198	4,843	7,325	7,475	75·8	80·4
GRAND TOTAL	8,778	9,480	22,949	25,453	31,727	30,933	80·9	80·5

In the following table the offences are classified in accordance with their character :—

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offences.				Grand total of cases.
	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest-produce.	Grazing without permission in forests in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest-produce.	Grazing without permission in forests in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest-produce.	Grazing without permission in forests in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest-produce.	Grazing without permission in forests in which grazing is prohibited.	Other offences.	
Bengal	27	194	16	42	...	657	388	323	47	7	4	1	74	858	410	365	1,647
N.-W. P. and Oudh	27	68	24	29	33	195	219	67	68	8	1	...	128	271	244	96	672
Punjab	91	559	263	104	5	3,145	1,141	42	92	6	13	6	188	3,710	1,417	154	5,559
Burma (Lower)	14	249	7	14	3	3,412	6	437	73	23	...	...	90	3,712	7	451	4,260
Burma (Upper)	1	142	1	29	5	286	21	117	16	2	...	...	22	430	22	146	620
Central Provinces	146	140	53	21	62	2,379	1,498	274	120	85	...	...	328	2,604	1,498	295	4,725
Assam	6	69	6	20	2	208	109	21	16	4	...	...	24	279	16	41	360
Coorg	2	6	...	2	...	72	65	23	...	...	...	...	2	78	65	25	170
Ajmere	3	71	5	2	...	416	6	6	...	5	...	2	3	494	11	8	516
Baluchistan	4	23	4	1	1	63	191	...	3	10	...	1	8	96	196	2	302
Andamans	...	5	...	...	...	...	...	...	...	...	...	...	...	5	...	...	5
Total	313	2,531	384	282	101	6,422	3,468	1,314	362	195	37	11	776	8,228	3,859	1,511	14,375
Berar	19	401	11	20	28	663	22	31	20	19	...	...	67	712	305	82	949
Total Bengal Presidency	332	1,635	365	313	129	7,102	3,560	1,345	382	213	37	11	843	8,950	3,962	1,589	15,324
Madras	Details not available.												98	5,947	2,412	1,121	1,454
Bombay	97	997	100	413	27	2,067	2,782	418	1,361	1,719	1,320	51	1,457	4,782	4,938	850	12,027
GRAND TOTAL	...	...	...	...	...	...	...	...	...	...	...	...	2,478	19,679	13,372	3,379	39,054

The majority of offences may be classed as theft or attempted theft of forest produce. A serious point brought out in the table is that, apart from Madras, which has not submitted the necessary details, the origin of forest-fires remained undetected in a large proportion of cases. In the Bengal Presidency the offenders remained undetected in 362 cases out of 776, and in Bombay in 1,363 cases out of a total of 1,487 cases.

II.—Protection from Fire.

In addition to the general protection against fires by the laws of the country, a considerable area is annually protected by artificial isolation and a cordon of fire-watchers. An analysis of this work is given in the following table:—

Province.	Area, in Square Miles.				Proportion of failures to area attempted.		Cost				Proportion of area under fire-protection to total area of forests in charge of Forest Department.	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.
					Per cent.	Per cent.	R	R	Pies.	Pies.	Per cent.	Per cent.
Bengal	4,957	4,957	1,695	1,373	3·16	29·84	5½	7½	1·7	2·2	14·73	14·66
North-Western Provinces and Oudh	3,012	2,840	2,922	2,514	2·98	11·47	21½	21½	6 3	7·2	76·03	72·76
Punjab	538	703	531	643	1·30	8·53	19½	4½	5·8	1·3	7·89	11 66
Burma (Lower)	1,056	781	981	712	7·10	8·83	55½	59½	16·5	17·7	14·56	10·52
Burma (Upper)	767	526	324	467	57·75	11 21	29½	12½	8·5	8·2	11·26	9·67
Central Provinces	5,961	5,875	5,728	5,485	3·89	6·63	9½	10½	3·0	3·0	30·40	29·87
Assam	1,202	1,202	1,195	1,053	0·50	12·40	7½	9	2·1	2·6	8·05	7·81
Coorg	204	204	20	182	...	10·80	40½	54	12·1	16·1	22·97	22·87
Ajmere	139	127	139	127	...	...	3½	2½	0·9	0·8	33·28	35·23
Total	14,836	14,215	13,919	12,556	6·18	11·67	11½	15½	4·3	4·7	*20·13	*19·70
Berar	1,429	1,419	1,398	1,391	2·17	1·97	9½	9½	2·8	3·0	34·19	33·96
Total Bengal Presidency	46,265	15,634	15,317	13,947	5·32	10·79	15½	15½	4·2	4·6	*20·38	*20·18
Madras	5,362	5,594	5,262	5,241	1·4	6·3	7½	8	2·2	2·4	28·41	29·32
Bombay	9,270	9,403	8,760	8,721	5·5	7·2	3½	3½	1·1	1·1	61·74	62·81
GRAND TOTAL	30,897	30,631	29,364	27,909	4·9	8·9	10½	10½	3·10	2·11	*27·63	*27·75

*Baluchistan and Andamans left out of account, as no special measures were taken for protection from fire.

During the year under review, 29,364 square miles were thus successfully protected at a total cost of R3,03,688. The cost of such protection varies from R3-2-0 to R55-4-0 per square mile. This policy has occasionally been criticized, and I have for this reason endeavoured to collect statistics regarding the sylvicultural and reproductive benefits derived from fire-protection. My data are as yet very incomplete, and I may perhaps be accused of using them to prove foregone conclusions which I am known to hold in regard to the great value of fire-protection, as compared with any other attempt or outlay we may make or incur towards the improvement of our forests. The data, however scanty as they are still, all tend in the same direction and merely vary as

regards the magnitude of the influence exercised. They show, moreover, that it is quite possible to collect, even now, much useful information from the past history of the forests, and to draw conclusions of some value by comparing the results gathered from fire-protected and non-protected blocks of similar constitution and position; and that it is by no means necessary, as suggested by various officers, to wait for 5, 10 or 15 years for the doubtless more accurate information which selected sample plots would yield in time. There is no question that the constitution of such sample plots is an excellent plan, which should not be lost sight of; but in the meantime many of our forests are still exposed to annual fires, because the outlay necessary to protect them is considered disproportionate to the future benefits derivable. This, and the fact that my appeal for information has been met by many in a very half-hearted way, are my excuse, if excuse be needed, for writing on this subject a little more fully than is usual in an annual Review.

Almost from the time Forestry was introduced into India, it was recognized that forests of pines and other gregarious trees could neither thrive nor reproduce themselves satisfactorily without being protected from fire, and almost all the more valuable areas containing forest of this kind have been thus protected for years with the very best of results. As regards forests, however, in which the more valuable trees occur only sporadically in a peuplement of other species, opinions have been by no means so decided in favour of fire-protection, and, even where they were held, it was by many officers considered preferable to concentrate reproduction and the necessary fire-protection by means of artificial cultivation. Many valuable plantations have thus been formed, but the procedure must always be connected with the danger of insect plagues; and this has already been borne out by experience.

It has often been argued that the very presence of teak and other trees of the more valuable species found in mixed forests, which for centuries were probably exposed to fires, indicates that these conflagrations do no permanent damage and in fact foster the stronger species as against other more susceptible ones. The most plausible attack against fire-protection in such forests was contained in the statement made in Burma a couple of years ago, that the reproduction of teak was less favourable in fire-protected forests than in exposed areas. This statement was for the time being accepted as correct by several observant officers, but though I had not sufficient recent experience in those forests to contradict it, I accepted it only under protest and I addressed the Local Government on the 26th April 1897 as follows:—

"I have the honour to state that I have carefully read the opinions on the effect of fire-protection to which your letter gives cover. During my recent tour in Burma I have, moreover, given special attention to the subject in question, and have by renewed observation confirmed the conclusions at which I had arrived during my previous residence in Burma and in the course of several official visits to that country.

"2. Evergreen, tidal and riparian forests may be left out of consideration, as they do not burn; and, as regards the question under consideration, we have, therefore, only to deal with the deciduous forests. In the majority of the opinions before me, this class of forests had been treated as uniform in their composition and characteristics. This, however, is by no means the case; and in order to enable us to gauge correctly the extent of the effects of fires on these forests, it seems to me essential that the main class, deciduous forests, should be further sub-divided in accordance with their composition. I intentionally use the words 'extent of the effects,' for, in all forests through which a fire passes, the same effect must be produced either in a greater or less degree. And as the composition of a forest varies, so must the effects of fire therein be more or less pronounced.

"3. Forests of pure *engdain* may for the present be left out of discussion, and I propose to deal only with such forests as contain teak, cutch, pyinkado, or any other species of commercial value.

"The sub-classes which I propose to adopt for my purpose are—

"(*a*) Forests in which the valuable species are found with an undergrowth of evergreen dense, periodically and gregariously flowering bamboos, which more or less prevent the natural reproduction of tree-growth at any other time except whilst the bamboo is seeding.

"(*b*) Forests in which the undergrowth consists of bamboos with a lighter foliage and which flower sporadically in stems or clumps as well as gregariously, and in which tree reproduction can always take place, but more specially when the cover has been opened out by the general, but also by the sporadic, flowering of the bamboo.

"(*c*) Forests in which the more valuable trees are found in a mixed or pure forest (which latter is, apart from small areas, almost entirely confined to cutch), and with an undergrowth of shrubs and herbaceous plants and grasses only.

"4. The observations generally recorded that little or no humus, in the sense usually adopted, is found in any of the sub-classes of the deciduous forests in Burma, even when fire-protected for some years, must be accepted as correct.

"However, there can be no doubt that in fire-protected forests, the leaves and other decaying vegetable substances are returned to the earth, and that the chemical properties of humus are imparted to the surface-soil, which is moreover loosened by the action of myriads of earth-worms, ants, beetles, etc.

"It seems to me immaterial whether the manuring principles are brought back to the soil by direct decomposition, or in a more indirect manner through the fœces and decomposing bodies of worms and insects, like stable manure ploughed under in fields.

"In the case of fires the wind dissipates the ashes and the rain washes them away, especially on hilly ground. Very little of what has been extracted from the soil by vegetation is returned to it.

"5. In forests of sub-class (*a*), protection from fire, or the occurrence of fire, can have no direct influence on the actual reproduction of trees, except during, and for some years after, the flowering of the bamboos. A fire when the culms begin to dry and before the bamboo seed has germinated might, perhaps, even be beneficial in this respect, but at an incalculable cost to the growing stock. Moreover, it is not at all certain how much a fire, which would of necessity be fierce, might affect the seeding power of mature trees during the critical period when re-production can take place.

"Apart, however, from this, to my mind, unsolved problem, the fact remains that constantly recurring fires must injuriously affect the producing power of the soil. It is true that the fine, pure, fertile loam produced by animal life out of decaying vegetable substances is also liable to be washed away by rain, but, as pointed out by Mr. Oliver, a covering of dead leaves remains long enough on the ground to prevent this. This is especially noticeable in forests of sub-class (*a*), where dead bamboo leaves cover the action of worms till the very end of the rains. The fact that the nutritive agencies are absorbed by the soil, instead of being stored on the surface in the form of a more or less inflammable material, renders an occasional fire less hurtful to the growing stock, as well as to the soil, than it would be in cases where such a layer of humus is present; and, in consideration of this fact, the use of properly controlled fires in selected areas is indicated when the bamboos flower in forests of this sub-class. In view, however, of the uncertainty as to whether the seeding power of the trees on the ground may not be temporarily affected by such fire, it would seem only provident to be prepared with an adequate supply of seed collected elsewhere.

"Fire-protection in Burma has not been established sufficiently long to give data regarding the increase in the rate of growth of teak and other valuable trees in fire-protected areas as compared with those in areas exposed to fires; but as the general aspect of the vegetation in such areas as have been fire-protected for some time has become much more luxuriant, there is every reason to believe that the growth of such trees has benefited in the same manner. The increased luxuriance of growth, generally, is specially observable in deciduous forests of this sub-class.

"6. Forest fires in forests of sub-class (*b*) are harmful throughout their existence. Trees of all age-classes are scattered over the ground, and the younger ones are more seriously affected by being scorched or cut back than those which have outgrown this danger. That in spite of this we find the teak better represented in forests of this sub-class which have

burned over year after year than any other species, merely indicates, in my opinion, that the former is more capable of withstanding, and to a certain extent of outgrowing, the effects of fire than any other tree.

"I am aware that the proportion of teak seedlings in burned forests of this sub-class is, owing to its superior power of resistance, greater than in protected forests; and I do not wish to contradict the statements made, more freely in the 'Indian Forester' than in the official correspondence it is true, but still on record, that the actual number of teak seedlings in unprotected forests is greater than in fire-protected areas.

'Indian Forester' of May, July and August 1896.

"There are reasons for this. The ground may be clearer and the cover overhead less dense; and especially where the plants cut back, and which have sent out new shoots, are allowed to count as seedlings, the statement may be correct. 'F.B.D.,' in the 'Indian Forester' of July last, accepts it as such, but pertinently adds 'we do not want annual fires for germination.' I fully agree in this, for it is unquestionable that each successive fire destroys the problematical advantages established by its forerunner. Granted that the teak trees in areas overrun by fires seed more freely (a crop of despair), that the number of teak seedlings in such forests is larger, I know that those grown in a fire-protected area are healthier, grow faster, and will yield better timber. A tree inside a fire-trace may have a more severe struggle to get its crown above the undergrowth; but to make fire do the work of improvement fellings is too absurd to be seriously considered.

"Taking everything into consideration, the effect of fires in forests of sub-class (*b*) on reproduction, not merely germination, but including the earlier stages of the teak tree's life, is, in my opinion, most pernicious. I feel convinced that a serious study of the problem at any place where a fire-trace runs through a teak-producing area of sub-class (*b*) will, if the observations extend to seedlings and to young growth up to 20 feet in height, prove my assertion to be correct.

"That constant fires retard the growth of established trees, affect their health, injure the timber, and even kill numerous trees, has been accepted even by those whose battle-cry has been 'too much fire-protection.'

"The injurious effect on the soil in forests of sub-class (*b*) is even more pronounced than in sub-class (*a*). The rain acts more directly on the soil, and the numerous stone-covered pinnacles in unprotected forests show the extent to which the soil is washed away.

"In fire-protected forests of sub-class (*b*) the insect world and worms work below a cover of leaves, which protects the assimilation of the nutritive substances with the soil, if not throughout the year, still till a living cover of grasses and herbs has established itself.

"7. Forests of sub-class (*c*) are, as regards teak, of much smaller extent and chiefly confined to Upper Burma, but as cutch-producing areas they are of great importance.

"The teak in these forests is chiefly produced in family groups, the formation of which can be encouraged and accomplished without the use of fires. In forests of this sub-class fires have no *raison d'être* whatsoever. The extent to which cutch reproduction takes place in suitable localities, by no other means than fire-protection, forming thickets in but few years, has frequently been observed, and no further arguments are needed to show the advisability of such measures as regards forests of this character.

"The effects on the soil in forests of this sub-class by recurring fires varies considerably in accordance with the more or less dense cover of grass and herbaceous plants.

"8. Pyinkado and other more valuable trees are all more sensitive than teak to the effects of fire, and protection consequently affects them even more than it does the teak.

"I entirely agree with Mr. Carr that the damage done to young tree-growth resulting from fire cannot be prevented by any other means than fire-protection, while impediments to reproduction and future growth which may be due to fire-protection can be prevented by other means; and I therefore strongly advise the policy of extending fire-protection as far as funds and administrative considerations allow.

"9. In one of the criticisms before me it is asserted that insects are much more numerous in fire-protected forests than in others. This probably is the case, but I doubt whether this does not refer to useful or at least harmless insects only; for previous experience certainly tends to indicate that burned and injured forests are more liable to attack by obnoxious beetles or larvæ. The officer who made the statement in question might perhaps be asked to amplify it."

The letters I have received in reply confirm my conclusion that fire-protection is essential to the growth of sound teak, at all events in the earlier

stages. The report by Mr. Corbett, Deputy Conservator in the Tharrawaddy Division, supplies the most valuable and interesting information. By examination and comparison of similar forests ,outside, but adjoining, the fire-trace and the nearest area inside the trace, he found that outside fire-traces the number of teak trees under six feet in height is certainly more than double the number inside the fire-trace on an equal area. Inside the fire-trace, however, the plants were almost invariably seedlings, whilst outside about one plant in five was found to be a seedling, the rest, as was shown by the size of their roots, had been burnt back year after year and were in many cases from 20 to 30 years old.

This explains why it was accepted that reproduction was more favourable outside than inside the protected area. Of plants, however, between 6 to 20 feet high, he reports that there were, roughly speaking, about three times as many inside the fire-trace as there were outside; inside the fire-trace the plants were as a rule well grown, whilst outside they had almost invariably been damaged by, or showed signs of the effect of, the fire.

No better proof could be required of the beneficial influence of fire-protection on reproduction and the growth of the young plant. Even at a more advanced stage, the teak is not so unsusceptible to the effects of fire as has been frequently assumed, and observations have tended to prove that dead teak trees of all ages are more frequently found in exposed than in protected forests.

Some interesting experiments have also been made as regards the comparative rate of growth of teak trees in fire-protected and exposed areas in the Tharrawaddy Division in Burma. Thirty-seven trees, measuring between 1′ 4″ and 2′ 4″ in girth, growing under protection and an equal number growing in areas exposed to annual conflagration were analysed. The analysis shows a total radial increase for the 37 trees inside the fire-belt of 15·91″ during six years, against 10·28″ for those outside. The measurements were made on four radii—north, south, east and west—and the average recorded.

In the Rangoon Division similar experiments were made on 30 trees of larger size inside and 30 trees outside the fire-trace. In this instance the growth is only slightly in favour of the former. This is also the case in experiments made in the Southern Circle, Central Provinces. Twenty *Pinus longifolia* of four to eight feet in girth inside the fire-belt showed a radial increase of 26·46″ in 15 years, whereas the same number outside gave only 19·67″.

As yet these researches have only been made by a few officers who take a special interest in the problem. To be of real value and to carry conviction, they should be undertaken more generally and under the direct supervision of a scientific and experienced officer, more especially in regard to the selection of the trees to be compared. Pressler's borer is a very good instrument for this purpose, but I feel inclined to believe that more can be learned by felling occasionally a limited number of trees of all sizes and by studying their history on the stump.

The subjoined table analyzes the origin of the fires reported :—

PROVINCE.	(A.) Fires caused by accident or through carelessness in burning fire-lines.		(B.) Fires entering the forests by crossing exterior fire-traces.		(C.) FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA.																Causes unknown.		TOTAL OF (A), (B) AND (C).	
					By workmen employed in the forests, by purchasers of forest-produce and by yak-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightning, or by fire-balloons.		By INTENTIONAL FIRING.											
													In order to obtain new grass.		In order to turn out game, or to reduce cover.		Maliciously.		Total.					
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in Acres.	No.	Area burnt, in acres.
Bengal	5	1,368	10	9,389	9	374	13	5,067	...	...	1	20	3	915	11	13,116	9	3,582	23	17,613	5	5,760	61	39,592
N.-W. P. and Oudh. — Central Circle	5	941	5	1,151	8	1,819	19	4,046	...	...	3	3,889	...	...	...	...	...	...	...	...	19	5,682	59	17,528
N.-W. P. and Oudh. — Oudh Circle	6	529	31	8,053	2	297	8	62	...	...	...	...	7	3,055	1	8	10	23,861	18	26,924	12	2,496	77	38,381
N.-W. P. and Oudh. — School Circle	13	927	1	3	1	1	3	69	1	1	7	182	...	...	2	65	1	174	3	239	5	• 918	34	2,349
TOTAL	24	2,397	37	9,207	11	2,117	30	4,197	1	1	10	4,071	7	3,055	3	73	11	24,035	21	27,163	36	9,096	170	58,249
*Punjab	6	58	19	1,381	16	2,186	36	3,155	...	...	4	51	30	4,851	1	55	3	610	34	5,416	31	812	146	13,559
Lower Burma — Pegu Circle	16	577	15	783	9	2,619	...	...	...	...	...	...	...	...	1	304	5	8,755	6	9,059	15	33,328	61	46,366
Lower Burma — Tenasserim Circle	4	104	2	42	13	140	4	432	...	...	...	...	...	...	...	...	...	...	...	...	3	745	26	1,463
TOTAL	20	681	17	825	22	2,759	4	432	...	...	...	...	...	...	1	304	5	8,755	6	9,059	18	34,073	87	47,829
Upper Burma* — Eastern Circle	4	26	9	11,257	1	960	17	18,182	1	20	...	...	...	...	1	260	3	9,600	4	9,860	10	12,083	46	52,413
Upper Burma* — Western Circle	6	10,240	3	124,298	...	...	4	119,296	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	253 824
TOTAL	10	10,266	12	135,575	1	960	21	137,478	1	20	...	...	...	...	1	260	3	9,600	4	9,860	10	12,083	59	306,242
Central Provinces. — Northern Circle	19	19,057	13	5,883	22	51,981	37	61,684	5	676	...	...	1	350	4	3,330	3	41	8	3,721	35	19,177	139	162,179
Central Provinces. — *Southern Circle	9	1,965	6	906	8	6,930	11	14,385	...	...	1	360	...	...	7	12,800	12	1,819	19	14,619	32	45,695	86	84,860
TOTAL	28	21,022	19	6,789	30	58,911	48	76,069	5	676	1	360	1	350	11	16,130	15	1,860	27	18,340	67	64,872	225	247,039
Assam	7	1,410	12	2,279	...	...	6	447	...	...	...	...	...	...	...	...	...	...	...	...	4	55	29	4,191
Coorg	4	107	1	8	...	...	...	...	...	...	...	...	...	...	1	15	2	95	3	110	2	15	10	240
Ajmere	1	19	2	162	1	60	1	25	...	...	...	...	...	...	...	...	...	...	...	...	1	125	6	382
Berar	11	846	...	...	14	14,047	1	15	...	...	2	54	...	...	...	...	1	600	1	600	11	4,360	40	19,922
Madras — Northern Circle	2	469	2	250	1	400	31	2,783	...	...	...	...	12	1,365	8	423	2	...	22	1,788	57	8,178	115	13,888
Madras — Central Circle	1	2	29	3,497	...	...	3	700	...	...	...	...	12	2,953	4	605	4	300	20	3,858	141	14,260	194	22,317
Madras — *Southern Circle	Details only partially reported.																						128	14,113
TOTAL																							43	50,318
Bombay — Northern Circle	16	460	73	16,048	7	201	99	13,127	8	1,937	...	...	...	...	13	1,352	16	801	29	2,153	373	40,194	605	74,180
Bombay — Central Circle	11	955	20	23,951	20	32,030	78	29,455	5	22	1	9	2	50	7	11,152	4	12	13	11,214	135	81,383	233	179,018
Bombay — Southern Circle	4	105	113	8,544	2	6	156	7,359	5	139	...	...	1	3	8	1,210	11	9,605	20	10,818	261	87,560	561	116,431
Bombay — Sindh Circle	4	142	9	155	6	1,024	28	1,146	2	35	...	...	20	1,000	...	...	2	290	22	1,290	1	183	72	3,975
TOTAL	35	1,662	215	48,698	35	33,261	361	51,047	20	2,133	1	8	23	1,053	28	13,714	33	10,708	84	25,475	770	211,320	1,521	373,504
GRAND TOTAL	154		375		140		555		27		19		88		69		88		245		1,150		2,063	1,161,167

• The figures against the Circles marked with an asterisk include cases of fire which occurred in areas dealt with by the antiquum establishments. Other Circles deal only with cases in which the area burnt was attempted to be protected by special measures.

This table is very interesting. It will be seen that 5·78 per cent. of all fires were due to accidents whilst establishing fire-protection, and that 14·08 per cent. crossed the fire-lines after they had been completed. About 80 per cent. of the fires had their origin within fire-traced areas. In 53·88 per cent. of these cases the origin remained undiscovered; in 26·00 per cent. the fires were due to carelessness on the part of villagers and travellers traversing the forests; 6·51 per cent. to the carelessness of people engaged in the extraction of forest produce; 1·26 per cent. of the fires were caused by railway engines, and 0·88 per cent. are ascribed to lightning. Intentional firing was proved in 11·47 per cent. cases. Of these fires, 35·92 per cent. were kindled to obtain new grass, 28·16 per cent. in order to drive game out of cover, and 35·42 per cent. out of malice.

III.—Regulation of Grazing.

The following table shows the area closed against grazing to all animals, and to browsers only:—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,976	5,217	20	3,378	2,129	11	4,034	1	...	13,288	7,339	31
N.-W. P. and Oudh	3,822	1,774	617	94	17	4	43	1	30	3,959	1,792	651
Punjab	1,681	353	472	2,877	55	71	2,259	23	212	6,816	431	755
Lower Burma	7,256	6,718	7,039	...	...	...	...	...	21	7,256	6,718	7,039
Upper Burma	6,893	5,899	2	...	...	...	...	...	...	6,893	5,899	2
Central Provinces	19,288	2,829	6,622	...	...	...	352	...	...	19,640	2,829	6,643
Assam	3,631	2,670	993	...	...	...	11,244	...	...	14,925	2,670	993
Coorg	238	157	...	650	...	...	...	...	...	888	157	...
Ajmere	129	45	139	...	...	...	10	...	10	149	45	149
Baluchistan	170	115	...	...	...	...	...	...	...	170	115	...
Andamans	85	...	...	...	...	...	1,868	...	...	1,953	...	...
Berar	4,179	916	147	...	...	...	...	...	...	4,179	916	147
Total Bengal Presidency	53,187	26,334	15,956	6,999	2,192	86	19,809	25	273	79,995	28,601	16,316
,, Madras ,,	13,138	Details not available.		...	...	...	5,769	Details not available.		16,907	1,767	18,091
,, Bombay ,,	12,986			2,025	Details not available.		4			15,015	1,738	6,605
Grand Total	79,311	...	...	9,024	...	...	25,582	...	...	113,917	32,106	41,001

In the Bengal Presidency the areas closed to all animals and to browsers only have been increased by 522 and 860 square miles, respectively. In Madras and Bombay, however, the areasentirely closed were reduced by 698 and 1,034 square miles; those closed to browsers in Madras only were augmented by the addition of 1,949 square miles.

The following table shows, so far as the information is available, the incidence of grazing in open forests.

Provinces.	Circle.	Grazed on payment. Number of animals.										Grazed free. Number of animals.									
		At full rates.					At privileged rates.					By right under Settlement.					During pleasure of Government, or otherwise than under Settlement.				
		Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	6,283	17,614	4,214	...	24	8,729	175,151	19,416	...	547	49,041	155,585	49,041	...	...	67	252	76	...	5
N.-W. P. and Oudh.	Central	20,258	62,698	2,333	95	340	849	4,165	49,032	...	116	24,610	119,620	28,690	...	803	5,433	34,713	69	...	...
	Oudh	11,695	41,464	3,242	...	94	23,647	144,219	1,714	...	44	1,883	12,220	...	...	...	1,130	5,853	403	...	289
	School	9,653	30,637	11,649	9,891	9,296	1,221	8,393	120	...	...	399	18,331	61,464	...	...	...	1,347	...	...	...
	Total	41,606	134,799	17,224	9,986	9,730	25,717	156,777	50,866	...	190	26,992	150,171	90,154	...	803	6,563	41,913	472	...	289
Punjab	...	29,142	120,387	401,249	4,824	2,315	14,756	41,536	227,024	207	4,232	142,281	*600,458	483,945	265	10,402	4,372	15,247	4,263	570	30
Burma (Lower)	Pegu	872	846	...	...	...	...	...	...	...	...	1,600	120	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	3,531	150	20	...	17	...	...	...	...	...
	Total	872	846	..	...	...	...	...	...	...	...	5,131	270	20	...	17	...	...	...	...	...
Burma (Upper)	Eastern	...	135	...	...	...	...	...	...	...	...	...	9,120	...	...	...	3,802	88	1	...	468
	Western	40	...	...	...	...	...	...	...	...	...	...	6,182	...	...	...	...	...	...	...	...
	Total	40	135	...	...	...	...	...	...	...	...	...	15,302	...	...	...	3,802	88	1	...	468
Central Provinces.	Northern	97,941	520,902	33,396	1	667	6,195	18,038	2,533	..	3	...	...	...	...	...	61,542	270,064	14,904	...	...
	Southern	103,102	889,957	167,718	...	130	5	51	23	...	60	...	...	...	...	...	8,175	91,300	7,621	...	...
	Total	201,043	1,408,859	201,114	1	797	6,200	18,089	2,556	...	63	...	...	...	...	...	69,717	361,364	22,525	...	...
Assam	...	18,499	6,383	505	...	61	...	...	...	...	...	...	...	...	...	...	72,740	129,348	9,801	...	187
Coorg	...	811	6,043	...	...	...	...	...	...	...	...	...	5,601	...	...	...	...	...	...	...	...
Ajmere	...	231	18,523	185	63	886	881	6,264	...	...	...	722	4,840	...	...	...	438	1,371	...	...	...
Baluchistan	...	50	2,746	2,695	...	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	...	111,086	697,243	268,598	47	3,782	4,411	33,120	17	...	...	247	79,551	30	...	...	103	7,470	...	...	...
	Total Bengal Presidency.	409,663	2,413,578	895,784	14,921	17,595	60,694	430,937	299,879	207	5,032	224,414	1,012,529	639,842	266	11,446	157,802	557,053	37,138	570	979
Madras Presidency.	Northern Central Southern	Information not available.																			
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay Presidency.	Northern	1,928	8,947	...	...	...	1,343	5,639	...	...	...	2,971	3,657	...	...	...	54,200	278,884	3,174	...	265
	Central	11,406	86,086	326,713	...	4,797	44,979	418,241	174,593	...	662	...	...	...	...	...	26,766	273,930	540	...	1,328
	Southern	5,649	15,206	44,412	...	133	84,675	247,173	57,217	...	102	...	...	...	...	...	24,643	77,443	20	...	2
	Sindh	53,406	72,226	369,978	9,630	2,429	12,267	24,935	31,614	679	152	4,595	19,400	...	...	585	118	485	485	...	519
	Total	72,389	182,465	741,103	9,630	7,359	143,264	695,988	263,424	679	916	7,566	23,057	...	...	585	105,727	630,742	4,228	...	2,114

* The Punjab Report gives a total of 270,458, but this is evidently due to a mistake in totalling up.

Madras gives no information under this head. The Punjab figures show large additions (125,000 buffaloes, 439,000 cattle and 371,000 sheep and goats) owing to the Kangra and Kulu settlements. Making due allowance for this, the Bengal Presidency shows a decrease of 220,000 buffaloes and 300,000 cattle amongst the animals on which grazing fees were realized. In Bombay also a decrease is shown of 437,000 buffaloes, 16,000 cattle and 141,000 sheep and goats.

Though, as will be seen from the following table, a rise took place in the amount realized for grazing in the North-Western Provinces and Oudh, Berar and Madras, a considerable drop took place in the grand total.

Provinces.	Circle.	Amount realized.	Amount foregone.
		R	R
Bengal	.....	19,208	92,600
North-Western Provinces and Oudh	Central	19,046	48,400
	Oudh	42,144	22,600
	School	18,099	10,300
	TOTAL	79,289	81,300
Punjab	.....	63,074	2,25,400
Lower Burma	Pegu	972	600
	Tenasserim	...	3,400
	TOTAL	972	4,000
Upper Burma	Eastern	170	9,300
	Western	20	14,400
	TOTAL	190	23,700
Central Provinces	Northern	1,32,355	64,200
	Southern	1,53,661	14,700
	TOTAL	2,86,016	78,900
Assam	.....	11,897	71,200
Coorg	.....	1,915	6,400
Ajmere	.....	1,089	2,500
Baluchistan	.....	742	9,900
Andamans	.....	...	...
Berar	.....	2,14,553	30,500
Total Bengal Presidency	.....	6,78,945	6,20,400
„ Madras Presidency	Northern	1,27,255	830
	Central	1,78,470	70
	Southern	70,629	800
	TOTAL	3,76,354	1,700
„ Bombay Presidency	Northern	6,905	1,90,300
	Central	2,32,462	3,09 000
	Southern	86,254	2,90,600
	Sindh	58,470	33,400
	TOTAL	3,84,091	8,23,300
GRAND TOTAL	.....	14,39,390	14,51,400

(a) Does not include fees realized under the commutation system and credited to II (g), the apportionment of which is not practicable

IV.—Reproduction and Sylviculture.

The following tables show the increase in the areas of plantations, the money spent thereon in the various provinces, and the expenditure on cultural operations :—

Province.	Area, in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at the close of the year. Regular Plantations.	Taungyas.	Total.
Bengal	3,141	...	3,141	37	...	37	...	...	...	3,178	...	3,178
N.-W. P. and Oudh	3,119	...	3,119	...	...	...	...	...	...	3,119	...	3,119
Punjab	496	...	496	265	...	265	65	...	65	696	...	696
Burma (Lower)	4,001	41,372	45,373	25	5,782	5,807	490	...	490	3,536	47,154	50,690
Burma (Upper)	108	687	795	141	236	377	...	68	68	249	855	1,104
Assam	2,510	...	2,510	12	...	12	518	...	518	2,034	...	2,034
Coorg	2,102	(a) 264	2,366	13	132	145	...	...	...	2,115	396	2,511
Ajmere	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	1,430	...	1,430	4	...	4	1,412	...	1,412	22	...	22
Andamans	81	...	81	6	...	6	...	...	...	87	...	87
Total	17,018	42,323	59,341	503	6,150	6,653	2,485	68	2,553	15,036	48,405	63,441
Berar	655	...	655	...	...	...	...	...	...	655	...	655
Total Bengal Presidency	17,673	42,323	59,996	503	6,150	6,653	2,485	68	2,553	15,691	48,405	64,096
Madras	26,460	...	26,460	8,190	...	8,190	787	...	787	33,863	...	(b)33,863
Bombay	10,557	...	10,557	1,478	...	1,478	628	...	628	11,407	...	11,407
GRAND TOTAL	54,960	42,323	97,013	10,171	6,150	16,321	3,900	68	3,968	60,961	48,405	109,366

(a) Entered as 208 acres in the 1895-96 Review. Difference due to revised figures having been furnished by the Deputy Conservator in the 1896-97 Report.
(b) Includes 10,677 acres of Topes.

	R		R
Bengal	579	Coorg	2,257
N.-W. P. and Oudh	979	Ajmere	...
Punjab	2,513	Baluchistan	1,168
Lower Burma	94,165	Andamans	55
Upper Burma	4,860	Berar	...
Central Provinces	...	Madras	38,255
Assam	14,830	Bombay	7,285

Total R1,66,946.

	R		R
Bengal	9,017	Coorg	576
N.-W. P. and Oudh	4,657	Ajmere	1,013
Punjab	2,362	Baluchistan	152
Lower Burma	10,995	Andamans	74
Upper Burma	350	Berar	1,565
Central Provinces	889	Madras	12,122
Assam	46	Bombay	12,516

Total R56,334.

CHAPTER III.

WORKING AND OUTTURN.

The total outturn of all forests under the control of the Forest Department in timber and fuel, bamboos and minor forest produce, with the average outturn per square mile, is exhibited in the following table :—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
										RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.		
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	16,635,865 (a)	7,618,219	91,833	18,3 6,277 (a)	4,137,329	1,53,567	522,251 (a)	6,109,977	5,817	2,873	1,795	15	5,437	1,225	45	101	1,589	1
N.-W. P. and Oudh	9,011,135	9,870,254	2,16,567	1,65,975	150,877	21,725	1,389	522,795	1,000	2,365	2,592	46	17,616	1,923	230	21	12,158	24
Punjab	3,888,667	561,813	1,34,185	16,698,131	90,711	2,20,157	10,913,897	...	1,21,150	2,313	278	80	5,503	35	80	4,617	...	55
Burma (Lower)	2,576,196	1,772,604	9,988	16,261,209	17,160,650	24,119	...	...	...	383	712	11	(c)	(c)	(c)	...	...	...
Burma (Upper)	6,928,270	3,187,115	41,576	10,311,507	12,219,971	2,06,138	... (d)	...	...	1,053	1,846	(c)	(c)	(c)	(c)	...	...	...
Central Provinces	20,110,170	16,715,722	5,78,346	...	...	...	13,921,830	22,514,150	3,61,259	1,025	851	30	...	...	...	1,238	2,002	32
Assam	2,362,114	1,628,540	1,641	...	...	...	...	...	...	375	441	1	...	...	...	...	...	...
Coorg	241,896	...	3,564	277,021	216,481	13,137	...	...	...	4,641	...	15	126	379	20	...	...	...
Ajmere	253,541	17,751	40,713	64	...	101	932	200	641	1,824	123	253	...	...	...	93	20	64
Baluchistan	1,826	...	11,272	...	...	...	385,005	...	18	251	...	66	...	...	...	389,005	...	18
Andamans	1,446,513	111,836	695	...	...	...	754,913	535,213	1,903	17,011	1,316	3	...	...	...	101	287	1
Berar	1,473,391	2,294,756	(e) 3,15,851	...	...	...	...	...	...	351	519	73	...	...	...	...	...	...
Madras (f)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (g)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Excludes removals of timber and fuel by purchasers from lands leased out for cultivation in the Sundarbans, and removals in drift from the Gandak river.
(b) In addition to the above, it is estimated that 7,250,606 bamboos were removed from the Chanda forests by contractors.
(c) Chapter IV of the Lower Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
(d) Excludes outturn from lands given out for cultivation, estimated at 1,224,211 cubic feet.
(e) Excludes R1,65,350, estimated value of grass and grazing under concessions.
(f) The forests of the Madras Presidency yielded 14,934,468 cubic feet of timber and fuel, 20,840,084 bamboos, and R9,41,739 worth of minor produce. Dividing these figures by the 18,927 square miles of forests under the control of the Forest Department, the average outturn per square mile was 784 cubic feet of timber and fuel, 1,631 bamboos, and R50 worth of minor produce.
(g) The forests of the Bombay Presidency yielded 54,508,199 cubic feet of timber and fuel, 6,620,103 bamboos and R13,98,461 worth of minor produce. Dividing these figures by the 13,615 square miles of forests under the control of the Forest Department, the average outturn per square mile was 3,830 cubic feet of timber and fuel, 457 bamboos and R92 worth of minor produce.

The amounts of forest produce removed by Government agency contrasted with the amounts removed by Purchasers were as follows :—

PROVINCE.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	571,960	(a)4,577,507	212,225	(a)14,247,501	12,075	13,460,839	184	1,20,410
N.-W. P. and Oudh	490,916	2,863,039	1,815,723	2,017,748	140,417	10,138,025	8,932	1,68,062
Punjab	826,287	611,605	2,248,169	1,966,165	455,451	112,133	1,190	1,68,423
Burma (Lower)	2,671,532	7,821,420	7,288	7,266,666	10,600	21,565,250	16	33,035
Burma (Upper)	680,719	12,193,523	660	3,544,077	700	13,856,979	262	2,23,826
Central Provinces	247,130	942,032	907,130	13,608,930	51,904	13,676,841	2,686	4,13,972
Assam	23,484	(b)3,278,845	18,284	(b)5,758,701	3,150	21,894,612	1,540	65,979
Coorg	87,984	244,583	...	175,225	...	229,681	2,398	7,893
Ajmere	301	10,386	1,106	226,402	...	17,351	1,162	3,263
Baluchistan	115	1,474	4,601	387,136	...	...	161	1,229
Andamans	218,171	43,332	86,272	4,856	...	68,000	...	934
Total	5,818,599	33,1.7,766	5,301,458	49,843,907	677,297	95,019,711	18,521	11,97,036
Berar	...	503,439	...	962,229	...	2,280,824	...	3,09,349
Total Bengal Presidency	5,818,599	33,621,205	5,301,458	50,806,136	677,297	97,300,535	18,521	15,06,385
Madras	449,988	2,107,635	2,450,068	9,467,371	229,852	30,437,257	47,746	8,52,453
Bombay	1,186,846	3,843,702	6,210,963	25,601,850	3,760	6,242,103	1,63,514	6,28,231
GRAND TOTAL	7,449,433	39,577,542	13,962,489	85,875,357	910,909	133,979,895	2,29,781	29,87,069

(a) Excludes removals from lands leased out for cultivation in the Sundarbans, and removals in drift from the Gandak river.
(b) Excludes outturn from lands leased out for cultivation, estimated at 1,224,211 cubic feet.

These figures compare with those of the previous year as follows :—

	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government	6,226,099	7,449,133	13,264,220	13,982,439	1,092,111	810,909	1,20,529	2,29,781
Purchasers	40,190,365 (a)	39,577,542	90,763,705	85,875,357	129,461,778	133,979,895	33,66,978	29,87,069
Total	46,416,464	47,026,975	109,027,925	99,857,796	130,553,889	134,790,804	24,87,507	32,16,850

(a) Decrease of 4,380 cubic feet, as compared with entry made in the Review for 1895-96, is due to correction reported in the 1896-97 Report from Coorg.

As compared with the year 1895-96, there was an increase of some 600,000 cubic feet in the amount of timber exported, occurring entirely under produce removed by departmental agency, chiefly in Bengal, the Punjab and in Upper Burma. Exports by Government agency from the latter province increased from 372,000 cubic feet in 1895-96 to 680,000 cubic feet in the year under review. Exports of timber by purchasers fell off by 612,000 cubic feet, chiefly in Bengal, Madras and Bombay, the latter province alone showing a decrease under this head of 2,716,000 cubic feet. Against this, the North-Western Provinces and Oudh, Punjab, Upper and Lower Burma, Assam and Coorg show a substantial increase of timber removed by purchasers. Exports of fuel fell off by 9,190,000 cubic feet, chiefly, as might be expected, owing to the unfavourable conditions prevailing in Bombay, where under fuel removed by purchasers there was a fall, compared with the year before, of nearly 10,000,000 cubic feet. The number of bamboos exported rose by 4,300,000, whilst the value of minor forest produce, including grass and grazing, fell by R2,70,000, mostly in Madras, where forest produce removed by purchasers shows a falling off of more than 2 lakhs of rupees. The question of the reliability of the figures purporting to show the outturn of the forests in timber and fuel attracted attention, and a proposal was made to abolish Chapter III of the Forest Annual Reports altogether, and to rely entirely on the financial results to exhibit the working of the forests. That considerable difficulty exists in obtaining accurate figures in cases where forest coupes are sold *en bloc* by area is certain. But fairly correct estimates are possible, and it has been decided that it is necessary to place on record the extent to which the forests are being worked so far as this can be done. The attention of all Conservators has been drawn to the matter, and it is hoped that they will find it possible to take steps to render the returns as accurate as possible.

The following gives the principal details of working in the various provinces :—

Bengal.—The following statement gives the total outturn, as compared with that of the previous year :—

	Timber.	Fuel.	Total.	Bamboos.	Grass and minor produce.
	C. ft.	C. ft.	C. ft.	No.	R
1895-96	*5,557,480	*22,684,959	38,242,439	†20,760,563	†3,28,364
1896-97	*5,396,702	*30,277,691	35,674,393	†18,160,514	†2,52,421
Decrease in 1896-97	160,778	2,407,268	2,568,046	2,540,049	76,443

* Excludes removals from Sundarbans leased lands, and removals in drift from the Gandak river.
† Excludes removals from the forests of Hill Tipperah.

There was thus a large falling off under all heads, due mainly to the unfavourable character of the season. The Local Government remarks—

"The total outturn of timber and fuel was 35,674,390 cubic feet, or 2,563,049 cubic feet less than in the previous year, being an average of 2,684·7 cubic feet per square mile. The decrease took place in every kind of forest produce; and was no doubt due to the agricultural depression. The total output of timber was 5,396,702 cubic feet, or 160,778 less than in the previous year. The operations for the supply of sleepers to the Rae Bareli-Benares railway continued in Singhbhum, where the outturn was 538,972 cubic feet, and Mr. Wild points out that it was only these operations that enabled the Circle to maintain its financial position during the year, which the prevalence of scarcity and drought in the Sundarbans and Chittagong (these being the Divisions which usually yield most profit) would otherwise have endangered. The whole amount of produce removed by departmental agency was 571,960 cubic feet of timber, 212,225 of fuel (mostly for the troops in Darjeeling) and 12,075 bamboos, besides minor produce. The amount of timber removed by purchasers was 4,577,509 cubic feet, or 573,034 cubic feet less than in the previous year. The amount of timber removed from the Sundarbans alone was 590,356 cubic feet less than in the previous year, and in Chittagong it was 119,529 cubic feet less. The yield of fuel also declined from 16,705,959 cubic feet to 14,247,507; here again the largest decrease was in the Sundarbans."

North-Western Provinces and Oudh.—Compared with that of the previous year, the outturn of the year is shown in the following table:—

Circle.	1895-96.	1896-97.	Difference in 1896-97.
		Timber.	
	C. ft.	C. ft.	C. ft.
Central	1,002,000	1,170,000	+168,000
Oudh	1,342,000	1,808,000	+466,000
School	706,000	1,135,000	+429,000
TOTAL	3,050,000	4,113,000	+1,063,000
		Firewood.	
	C. ft.	C. ft.	C. ft.
Central	3,397,000	3,202,000	—195,000
Oudh	2,951,000	2,120,000	—831,000
School	2,139,000	1,263,000	—876,000
TOTAL	8,487,000	6,585,000	—1,902,000
		Minor produce.	
	R	R	R
Central	2,46,862	1,80,752	—66,110
Oudh	91,378	93,392	+2,014
School	64,178	58,326	—5,852
TOTAL	4,02,418	3,32,470	—69,948

There was a considerable increase in the amount of timber exported, particularly in the Oudh and School Circles. Increased removals by purchasers in all three Circles contributed to this result. The falling off in fuel, bamboos and minor produce is attributed to the unfavourable season and the prevalence of famine. The only increase was in the amount of minor forest produce used by right-holders and free-grantees, which was R17,000 more than in the previous year.

Punjab.—The produce removed from the forests is compared with that removed during 1895-96 in the following statement:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft.	No.	R	R
Government agency	826,287	2,249,169	415,451	82	1,168
Purchasers	641,605	1,966,165	112,133	1,60,046	8,377
Free-grants	47,023	57,063	...	18,184	204
Right-holders	804,806	24,937,880	...	2,54,871	44,931
TOTAL	2,319,721	29,209,277	567,584	4,33,183	54,620
Total for 1895-96	1,922,724	29,652,027	746,642	3,99,931	54,316

The outturn of timber increased by about 4 lakhs of cubic feet, of which 2½ lakhs were due to increased departmental operations, the remainder being due to increased removals by purchasers, and to an increase in the amount of timber granted to right-holders. There was an increase under grass and grazing of R33,000, due to increased grants to right-holders. Figures under other heads remained much the same.

Burma.—The outturn of timber and fuel is exhibited and compared with that of the previous year in the following table :—

Class of forest and agency by which produce was removed.	TIMBER.						FUEL.						TOTAL, TIMBER AND FUEL.		
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			Lower Burma.	Upper Burma.	Total.
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.			
RESERVED.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government . . .	1,452,894	406,362	1,859,256	257,713	8,519	266,232	...	...	...	561	...	561	1,859,256	266,793	2,126,049
Purchasers . . .	219,291	434,794	654,085	5,163,596	581,191	5,744,787	42,675	...	42,675	285,916	...	285,916	696,760	6,030,703	6,727,463
Free-grantees . . .	...	500	500	5,954	...	5,954	...	...	...	665	...	665	500	6,619	7,119
Right-holders . . .	500	3,750	4,250	5,389	236,622	242,011	10,000	5,430	15,430	366,450	16,700	383,150	19,680	625,161	644,841
Total .	1,672,685	845,406	2,518,091	5,432,652	826,332	6,258,984	52,675	5,430	58,105	653,592	16,700	670,292	2,576,196	6,929,276	9,505,472
UNRESERVED. (*Afforded protection under Chapter IV of the Act and of the Regulation.*)															
Government . . .	433,417	378,859	812,276	359,638	54,849	414,487	7,288	...	7,288	99	...	99	819,564	414,586	1,234,150
Purchasers . . .	4,295,151	2,872,184	7,167,335	4,329,036	2,119,700	6,448,736	6,027,926	1,836,065	7,863,991	2,595,748	662,413	3,258,161	15,031,326	9,706,897	24,738,223
Free-grantees . . .	100,828	251,347	352,175	65,624	124,400	190,024	28,860	...	28,860	...	...	...	381,035	190,024	571,059
Right-holders . . .	...	30,284	30,284	...	...	...	...	...	...	...	...	...	30,284	...	30,284
Total .	4,829,396	3,532,674	8,362,070	4,754,298	2,298,949	7,053,247	6,064,074	1,836,065	7,900,139	2,595,847	662,413	3,258,260	16,262,209	10,311,507	26,573,716
GRAND TOTAL IN 1896-97 .	6,502,081	4,378,080	10,880,161	10,186,950	3,125,281	13,312,231	6,116,749	1,841,495	7,958,244	3,249,439	679,113	3,928,552	18,838,405	17,240,783	36,079,188
GRAND TOTAL IN 1895-96 .	5,578,683	4,747,090	10,325,773	9,123,452	3,349,045	12,477,497	5,453,018	1,228,714	6,681,732	3,841,569	438,384	4,279,953	17,007,505	16,757,450	33,764,955
Difference in 1896-97 .	+ 923,398	— 369,010	+ 554,388	+1,058,498	— 223,764	+ 834,734	+ 663,731	+ 612,781	+1,276,512	— 592,130	+ 240,729	— 351,401	+1,829,900	+ 483,333	+2,313,238

The total outturn of timber of all kinds from Upper and Lower Burma was 24,192,000 cubic feet, as compared with 22,803,000 cubic feet in the previous year. The amount of teak timber and of other reserved woods, exported for trade purposes, was as follows :—

Circle.	Teak.		Other Reserved woods.	
	By Government Agency.	By Purchasers and lessees.	By Government Agency.	By Purchasers and lessees.
	Tons.	Tons.	Tons.	Tons.
Tenasserim	15,752	14,668	471	10,259
Pegu	35,370	1,219	2,204	31,801
Total Lower Burma	50,522	15,887	2,676	42,060
Eastern	12,269	151,488	8	83
Western	1,189	41,695	...	308
Total Upper Burma	13,458	193,183	8	391
Grand Total Burma	63,980	209,070	2,684	42,451

Thus a total of 273,050 tons or 13,652,500 cubic feet of teak, and 45,135 tons or 2,256,750 cubic feet of other reserved woods were exported. The extractions of pyinkado timber in the Tenasserim Circle increased considerably.

The following table shows the number of bamboos, the value of grazing and other minor produce, as compared with the year 1895-96 :—

Class of forests, and agency by which produce was removed.	MINOR FOREST PRODUCE.																	
	Bamboos.						Grass and Grazing.						Other Minor Produce.					
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.		
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.
RESERVED.	No.	No.	No.	No.	No.	No.	R	R	R	R	R	R	R	R	R	R	R	R
Government	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15	...	...	15
Purchasers	3,857,900	574,900	4,432,800	1,250,960	382,450	1,633,410	972	...	972	170	20	190	2,076	1,884	3,960	1,143	14,659	15,802
Free-grantees	...	...	...	2,500	...	2,500	...	...	...	6,162	...	6,162	...	...	...	56	...	56
Right-holders	186,400	103,405	289,805	415,375	1,135,830	1,551,205	608	3,405	4,013	3,154	14,402	17,556	845	196	1,041	1,156	639	1,795
Total	4,044,300(a)	678,305(b)	4,722,605(c)	1,668,835(d)	1,488,280(e)	3,187,115(f)	1,580	3,405	4,985	9,486	14,422	23,908	2,921	2,080	5,001	2,370	15,298	17,668
UNRESERVED. (*Afforded protection under Chapter IV of the Act and of the Regulation.*)																		
Government	10,600	...	10,600	700	...	700	..	...	...	...	...	...	16	...	16	247	...	247
Purchasers	14,747,500	2,384,950	17,132,450	6,147,623	6,075,946	12,223,569	...	...	...	...	...	...	13,674	14,429	28,103	86,229	1,21,605	2,07,834
Free-grantees	17,600	...	17,600	25,705	...	25,705	...	..	...	...	...	...	...	...	...	57	...	57
Right-holders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	14,775,700(g)	2,384,950(h)	17,160,650(i)	6,174,028(j)	6,075,946(k)	12,249,974(l)	...	...	...	...	...	...	13,690	14,429	28,119	86,533	1,21,605	2,08,138
GRAND TOTAL IN 1896-97	18,820,000(m)	3,063,255(n)	21,883,255(o)	7,872,863(p)	7,564,226(q)	15,437,089(r)	1,580	3,405	4,985	9,486	14,422	23,908	16,611	16,509	33,120	88,903	1,36,903	2,25,806
GRAND TOTAL IN 1895-96	17,985,100(s)	3,176,229(t)	21,161,329(u)	13,150,954(v)	7,275,785(w)	20,426,739(x)	23,909	3,798	27,707	7,930	10,519	18,449	17,119	16,176	33,295	1,11,735	1,43,846	2,55,581
Difference in 1896-97	+ 834,900	— 112,974	+ 721,926	— 5,278,091	+ 288,441	— 4,989,650	— 22,329	— 393	— 22,722	+ 1,556	+ 3,903	+ 5,459	— 508	+ 333	— 175	— 22,832	— 6,943	— 29,775

	R		R		R		R
(a) Value	10,149	(g) Value	30,873	(m) Value	41,022	(s) Value	44,988
(b) ,,	1,795	(h) ,,	5,963	(n) ,,	7,758	(t) ,,	8,350
(c) ,,	11,944	(i) ,,	36,836	(o) ,,	48,780	(u) ,,	53,338
(d) ,,	5,365	(j) ,,	16,261	(p) ,,	21,626	(v) ,,	36,739
(e) ,,	2,294	(k) ,,	15,051	(q) ,,	17,345	(w) ,,	18,485
(f) ,,	7,659	(l) ,,	31,312	(r) ,,	38,971	(x) ,,	55,224

The chief point to notice is the falling off in the value of minor forest produce in the Eastern Circle of Upper Burma, due to the decreased revenue from caoutchouc owing, it is feared, to the destruction of the trees by overtapping.

Central Provinces.—The Local Government thus summarize the working of the year :—

"The gross outturn in cubic feet of timber and fuel is contrasted with that of the previous year in the following table :—

Year.	Timber.		Fuel.	
	Northern Circle.	Southern Circle.	Northern Circle.	Southern Circle.
1895-96	527,389	564,224	5,502,935	7,785,320
1896-97	534,473	783,290	11,051,236	7,741,171
Increase (+) or Decrease (—) . . .	+7,084	+219,066	+5,548,301	—44,649

These figures exclude, as was noticed in last year's Resolution, the timber and fuel removed by commuters in Chanda.

Of the totals given above, 128,601 cubic feet of timber and 4,276,347 cubic feet of fuel are accounted for by the free grants made on account of the general scarcity. If the increase under this head be excluded, the Southern Circle shows an increase of 118,950 cubic feet under "timber" and a decrease of 813,736 cubic feet under "fuel." Part of the increase under "timber" was due to a great development of trade in Sambalpur, where 63,000 cubic feet of sawn timber was removed by purchasers. Other large increases were in Balaghat, Bhandara and Chhindwara. The reduction under "fuel" was common to nearly all districts except Chanda. In the Northern Circle, if the amounts taken as free grants be deducted from the figures of both years, the increases are 2,448 cubic feet under "timber" and 3,674,430 cubic feet under "fuel." The very different results in the two Circles under the head "fuel" are somewhat remarkable. Although the quantity of fuel given free in the Northern Circle was more than three times what it was in the Southern Circle, yet the amount removed by purchasers or departmentally fell by 10 per cent. in the latter Circle, while it rose by nearly 90 per cent. in the former. The Conservator, Northern Circle, would apparently attribute this to the greater severity of the famine in the northern districts, which compelled the people, as he says, to eke out their means by selling forest produce. But this pre-supposes a largely increased demand, which is difficult to account for. An examination of the figures in Form No. 57 shows extraordinary variations between district and district. Thus in Jubbulpore, the amount of fuel removed by purchasers rose from 1,260,059 cubic feet in the previous year to 5,575,542 cubic feet in the year under report, notwithstanding free grants of 606,317 cubic feet against 384,000 cubic feet in the previous year, while in Mandla, an equally distressed district, removals by purchasers fell from 350,787 cubic feet to 244,954 cubic feet, and in Hoshangabad from 406,539 cubic feet to 215,975 cubic feet.

As regards minor produce, the quantity of grass removed, otherwise than under free grants, rose largely in both Circles, but the number of bamboos removed on payment fell in the Northern, while it rose in the Southern Circle."

Assam.—The gross outturn in timber and fuel is given below, and compared with that of the previous year.

Agency by which produce was removed.	1895-96.			1896-97.		
	Timber.	Fuel.	Total.	Timber.	Fuel.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government . .	73,544	11,739	85,283	23,484	18,284	41,768
Purchasers . .	2,320,629	646,751	3,017,380	4,538,836	6,222,920	10,761,757
Free-grantees . .	454,309	9,186,564	9,640,873	653,067	5,074,563	5,727,630
Total .	2,898,482	9,845,054	12,743,536	5,215,387	11,315,767	16,531,156

Excluding the outturn of timber and fuel from lands given out for cultivation, which amounted to 1,224, 211 cubic feet, the total outturn from Government forest was 15,306,944 cubic feet.

Of this amount, some 14,000,000 cubic feet were exploited from Unclassed forests. The outturn was thus some 7,000,000 cubic feet more than last year, the chief increase being under rough poles in the Garo Hills and under fuel, the outturn of which rose from 5,900,000, cubic feet to 10,800,000 cubic feet. The outturn of tea boxes increased by some 63,000 standing at 447,500 for the year. The outturn of home rubber increased from 714 maunds in 1895-96 to 1,222 maunds, due mainly to the leasing out of the Darrang mahals. Foreign rubber also shows an increase to 2,825 maunds, as compared with 2,520 maunds in 1895-96.

Coorg.—The outturn of all the forest produce for the past two years compares as follows :—

Agency of work.	Timber, in C. ft.		Sandalwood, in tons.		Fuel, in C. ft.		Bamboos, No.		Grass and grazing, value.		Other forest produce, including cardamoms.	
	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.
Government	62,914	87,753	75	141	...	...	...	...	...	...	598	244
Purchasers	*394,665	244,583	...	...	216,700	171,225	331,553	229,631	...	...	867 cardamoms	893
Villagers and others	...	...	...	...	...	...	...	...	2,616	2,154	12,145	6,995
Free-grantees	7,221	21,125	...	...	...	...	9,747	16,900	6,400	6,400	...	...

* The figure, viz. 394,665 cubic feet, shown last year under timber by purchasers, erroneously included 4,390 cubic feet of sandalwood, which has been deducted. This entry of 4,390 cubic feet in paragraph 6 of last year's report under "Sandalwood by purchasers" and also in Form No. 57 under "Miscellaneous by purchasers from protected forests," is a mistake and is omitted in this report, as no sandalwood is removed from protected forests by purchasers.

The outturn of all kinds of forest produce decreased considerably, and 134,000 cubic feet of timber remained undisposed of in the forests. The plague in Bombay affected adversely the sales of sandalwood, of which only 58 tons were sold. The cardamom crop was almost an entire failure, and only R6,990 were realized under this head, against R12,840 last year.

Ajmere.—The outturn of the year compared with that of 1895-96 was as follows :—

Agency by which produce was removed.	Timber and Fuel.		Other produce.		Difference.	
	1895-96.	1896-97.	1895-96.	1896-97.	Timber and Fuel.	Other produce.
	C. ft.	C. ft.	R	R	C. ft.	R
Government	533	1,407	919	1,162	+874	+243
Purchasers	235,887	237,288	4,915	3,613	+1,401	—1,302
Free-grantees	860	470	1,668	2,591	—460	+923
Right-holders	7,445	15,445	74,080	34,779	+8,000	—39,301
TOTAL	244,725	254,540	81,582	42,145	+9,815	—39,437

There was thus an increase in timber and fuel exported by purchasers, and a considerable falling off in the value of minor forest produce given to right-holders. Owing to the abundance of grass on village areas, the quantity removed from the forests by right-holders was much less than in the previous year.

Baluchistan.—The following statement shows the outturn of the year as compared with 1895-96 in timber and fuel :—

Class of forests.	Timber.		Fuel.	
	1895-96.	1896-97.	1895-96.	1896-97.
	C. ft.	C. ft.	C. ft.	C. ft.
Reserved	679	271	3,202	4,097
Unclassed	2,162	1,365	443,336	387,640
TOTAL	2,841	1,636	446,538	391,737

The outturn of timber and fuel from State and Unclassed forests thus amounted to 393,373 cubic feet, as against 449,379 cubic feet in the previous year. The value of minor forest produce amounted to R11,296, as against R10,051 in 1895-96.

Andamans.—The outturn of timber and fuel, compared with that of the previous year, was as follows :—

	1895-96. c.ft.	1896-97. c.ft.
Timber—		
Removed by the Forest Department	229,583	218,171
„ „ purchasers	38,150	43,332
TOTAL	267,733	261,503

	1895-96. c.ft.	1896-97. c.ft.
Poles, Bullies, etc.—		
Removed by District Officers	24,767	24,524
„ on free-grants	37,500	37,500
TOTAL	62,267	62,024
Fuel—		
Removed by the Forest Department	...	86,272
„ „ purchasers	3,955	4,856
„ „ District Officers	1,581,425	1,458,778
„ on free-grants	330,000	330,000
TOTAL	1,915,380	1,879,906

The demand for padouk timber in England and America remained dull throughout the year, and the only consignment of the wood sent to London consisted of 20 padouk squares, 927 cubic feet. Sales in London amounted to 52,755 cubic feet, and some 20,000 cubic feet of chuglam and koko were also disposed of. Local sales of padouk amounted to 47,729 cubic feet.

Berar.—The sales outturn of 1895-96 and 1896-97 are compared as follows:—

DESCRIPTION OF PRODUCE.		1895-96.	1896-97.	1896-97. Increase.	1896-97. Decrease.
Timber	c.ft.	459,930	503,439	43,509	...
Fuel	c.ft.	983,466	962,229	...	21,237
Bamboos	No. in 100's	24,946	22,808	...	2,138
Grass	value R	36,799	73,955	37,156	...
Grazing	value R	2,11,952	2,14,610	2,658	...
Miscellaneous — II.—Fruits, dye-stuffs, lac.	value R	35,540	20,784	...	14,756
Miscellaneous — III.—Waif-wood	value R	216	241	25	...
Miscellaneous — V.—Other sources		4,687	4,498	...	189
Gross revenue per square mile	R	119	119	...	...
Net revenue per square mile	„	64	58	...	6

The Conservator remarks—

"The export of timber was stimulated by the specially low rates conceded in the Melghat to help the Kurkus and others who earn a livelihood by cutting and exporting. The fall in fuel was due to the concession made of free headloads in Wun and to reduced sales owing to the fall in the demand for fuel for cotton presses. Grass was sold in enormous quantities owing to the failure in the ordinary fodder crops. Minor products fell off partly because the hilda and lac crops failed, but mainly because all the mohwa and most of the mango crop and sendi leaves, etc., were given free to aid the poor."

Madras.—The total outturn of the year in timber and other produce compares with that of the previous year as follows:—

Agency by which produce was removed.	Timber (in cubic feet) including sandal-wood.		Fuel (in cubic feet).		Bamboos (in number).		Minor produce (gross value in rupees).	
	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.
By Government	423,176	449,988	2,897,561	2,450,063	57,067	229,852	16,959	47,716
By purchasers (including contractors).	2,409,066	2,107,635	10,629,705	9,467,371	33,611,403	30,937,257	*1,060,371	*852,453
By free-grants	70,673	82,951	12,074	7,212	57,349	157,961	2,099	1,773
By right-holders	3,826	1,702	45	257,541	...	21,714	457	40,767
Total	2,907,016	2,642,276	13,739,385	12,182,192	33,725,819	30,916,684	1,079,886	942,739
Increase or decrease in 1896-97 as compared with 1895-96.	...	—264,770	...	—1,557,193	...	—2,879,135	...	—137,147
Percentage of increase or decrease over the previous year's total.	...	—9·1	...	—11·3	...	—8·5	...	—12·7

* Includes grazing fees.

There was a falling off under all heads due to the unfavourable season and the prevailing distress. Owing to increased sales by departmental agency and to a considerably increased revenue from grazing and from the sales of lands given out for cultivation, the fall in the outturn was not followed by a fall in receipts, which rose by R21,000. The prevailing scarcity

restricted the demands of purchasers. The removal of grass under free-grants greatly increased, owing to the reserve being thrown open in places where scarcity was felt.

Bombay.—The following table sets forth the yield in detail by Circles :—

Circle.	Agency by which material was removed.	Material removed.					Average Outturn per square mile of all forests.		
		Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.
		C. ft.	C. ft.	C. ft	No.	R	C. ft.	No.	R.
Northern Circle.	Government	117,927	117,576	235,503	1,582	...	...	...	...
	Purchasers	2,068,031	3,037,739	5,105,733	*1,746,031	9,555	...	...	...
	Free-grants	9,730	560,030	569,730	11,835	2,930	...	...	...
	Right-holders	...	1,029,516	1,029,516	52,010	6,190	...	...	...
	Total	2,195,751	4,685,361	6,881,112	*1,811,461	18,675	†1,234	†1,114	†11
Central Circle	Government	264,820	2,503 611	2,763,414	...	20,570	...	...	...
	Purchasers	753,105	1,161,251	1,914,356	1,079,522	1,02,733	...	...	...
	Free-grants	28,595	59,565	61,910	2,000	...	...	...	...
	Right-holders	2,697	4,222,195	4,225,182	20,000	3,11,835	...	...	...
	Total	1,047,217	7,926,725	8,973,912	1,102,129	7,35,143	1,410	173	115
Southern Circle	Government	‡795,166	3,511,570	4,307,736	2,178	76,229	...	...	...
	Purchasers	671,723	3,880,926	4,552,554	13,416,570	30,172	...	...	...
	Free-grants	57,515	1,183	58,533	22,550	6	...	...	...
	Right-holders	...	..	...	...	...	...	...	...
	Total	§1,525,229	7,393,581	8,918,823	3,441,298	1,06,477	1,683	652	29
Sind Circle	Government	1,613	78,203	79,816	...	282	...	...	...
	Purchasers	355,775	17,521,531	17,877,306	...	5,616	...	...	...
	Free-grants	10,937	7,083	18,025	...	87	...	...	...
	Right-holders	...	171,231	171,231	...	900	...	...	...
	Total	368,325	17,778,106	18,146,461	...	26,879	16,994	...	25
All Circles combined.	Government	1,180,506	6,210,923	7,391,529	3,760	97,151	...	...	...
	Purchasers	3,848,702	25,571,550	29,450,552	6,242,103	4,68,075	...	...	...
	Free-grants	104,097	547,641	652,218	36,385	3,023	...	...	...
	Right-holders	2,697	5,423,322	5,426,009	72,010	3,18,025	...	...	...
	Grand Total for 1896-97.	5,136,562	37,723,776	42,920,338	6,354,258	8,87,174	2,993	443	61
	Grand Total for 1895-96.	7,872,898	49,560,780	57,433,678	7,617,956	10,53,216	4,022	535	76
	Decrease in 1896-97.	2,736,336	11,777,004	14,513,340	1,263,068	1,66,042	1,029	92	15

* Besides 5,073 cart-loads and 5,261 head-loads of bamboos.
† These averages are per square mile of the total forest area of the Northern Circle excluding the leased forests of the Dángs.
‡ Besides khandis, etc., of sandal-wood.
§ Besides 68 cart-loads of dry bamboos.
‖ Besides 11,588,591 cubic feet of timber and fuel, 516,216 bamboos, and minor produce of the value of R17,337 removed under privileges.

The Bombay Government in their review of the Forest Administration remark—

"The operations of the Department have in every Circle been seriously hampered by the misfortunes of a year of famine and plague. Slackness of business in the areas of scarcity reduced the demand both for timber and firewood, and where the effects of famine were not felt, the plague with its inevitable restrictions checked exploitation. In the Northern Circle in Thána the material as it stood in 242 coupes was sold, but the rate realized fell by over 20 per cent.—from R36·4 to R28·7 per acre; departmental workings were maintained at their normal activity, but in Panch Mahals the agricultural depôt system proved a failure, and in Surat two lakhs of bamboos sold from the Dáng forests were left unremoved. In the Central Circle attempts made to introduce the Thána system of selling the material as it stood in coupes were unsuccessful; the removal of produce by purchasers decreased by more than one-half, and while the amount of timber and firewood exploited departmentally increased, the price obtained fell 38 per cent. In the Southern Circle the uniform decrease in outturn calls for no further explanation. In Sind the coupe contract system was successfully prosecuted, and the rate per acre obtained rose from R6 to R8, but there was a material decline in sales to purchasers other than the contractors."

CHAPTER IV.

Financial Results.

The gross revenue realized during the financial year amounted to ₹1,78,56,000, whilst the surplus was ₹78,11,000. Notwithstanding the unfavourable condition of the year, the gross revenue realized was higher than it has ever been before, and the surplus has only once been exceeded—in 1893-94, when it reached the sum of ₹83,72,000. The provinces affected by plague and famine naturally show a large falling off in revenue, as in Bombay, Central Provinces, and North-Western Provinces and Oudh. Against this, the provinces of Bengal, Burma and Madras show a large increase in both revenue and surplus. The principal variations in revenue and surplus, as compared with the previous year, were—

	Revenue.	*Surplus.*
	₹	₹
Bengal	+4,52,000	+2,28,000
North-Western Provinces and Oudh	—1,56,000	—1,20,000
Punjab	+93,000	+48,000
Lower Burma	+4,03,000	+2,58,000
Upper Burma	+2,79,000	+2,29,000
Central Provinces	—2,23,000	—2,21,000
Andamans	+2,30,000	+15,000
Madras	+1,92,000	+1,04,000
Bombay	—5,04,000	—5,14,000

The following table gives the revenue and surplus realized in each province compared with the average of the preceding five years, as well as the proportion of surplus to gross revenue, and the net revenue realized per square mile of forest :—

Province.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1896-97.	Average for preceding 5 years.	1896-97.	Average for preceding 5 years.	1896-97.	Average for preceding 5 years.		
	₹	₹	₹	₹	₹	₹	Per cent.	₹
Imperial	4,100	4,455	...	...	74,860	79,396	...	...
Bengal	13,70,850	8,10,085	6,80,810	3,95,677	...	...	49·6	51·2
North Western Provinces and Oudh.	14,44,820	16,70,701	5,38,480	7,24,913	...	...	37·2	136·0
Punjab	11,07,720	9,58,587	3,84,420	2,91,884	...	...	34·7	56·4
Burma (Lower)	38,18,270	33,23,917	23,14,980	19,70,721	...	...	60·6	319·3
Burma (Upper)	25,60,680	20,28,708	19,35,150	15,38,290	...	...	75·6	284·2
Central Provinces	7,73,320	11,46,160	...	2,42,979	1,77,670	...	...	...
Assam	4,36,440	4,13,516	1,54,430	1,41,923	...	...	35·4	10·3
Coorg	23,000	1,65,133	21,370	81,369	...	...	22·9	24·0
Ajmere	12,370	15,558	...	455	9,640	...	...	...
Baluchistan	15,460	18,320	...	...	14,310	28,185	...	...
Andamans	3,62,370	2,61,254	45,770	38,160	..	...	12·6	23·4
Forest School	2,850	2,571	...	...	64,530	56,270	...	...
Forest Surveys (Imperial)	400	321	...	...	31,570	27,025	...	...
Total	1,20,02,650	1,08,22,286	57,02,830	52,85,495	...	...	47·5	75·2
Berar	5,17,520	4,78,549	2,75,950	2,42,750	...	...	53·3	66·0
Total Bengal Presidency	1,25,20,470	1,13,00,835	59,78,780	55,23,245	...	...	47·7	74·7
„ Madras „	23,03,330	18,44,641	7,69,030	4,74,766	...	...	33·4	40·7
„ Bombay „	30,32,710	36,27,049	10,63,550	15,40,114	...	...	35·1	70·8
GRAND TOTAL	1,78,56,510	1,66,72,525	78,11,360	75,43,125	...	...	43·7	68·6

The figures for the quinquennial periods since 1871-72 are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to gross Revenue.
	R	R	Per cent.
1871-72 to 1875-76	63,21,499	42,19,379	67
1876-77 to 1880-81	68,59,663	47,30,178	69
1881-82 to 1885-86	1,02,04,364	64,95,993	64
1886-87 to 1890-91	1,34,43,186	78,21,872	58
1891-92 to 1895-96	1,66,72,525	91,29,400	55

The proportion of expenditure to gross revenue for the five years 1891-92 to 1895-96 was 55, as compared with 54 for the period 1890-91 to 1894-95.

The estimated value of forest produce given away free or at reduced rates to right-holders and free-grantees is shown in the following table :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	R	R	R	R	R	R
Bengal	9,200	83,350	6,750	32,400	92,600	2,25,300
North-Western Provinces and Oudh.	1,07,100	38,700	900	10,800	91,600	2,49,100
Punjab	69,800	3,13,300	...	45,100	2,73,000	7,01,200
Burma (Lower) . . .	17,500	200	900	1,000	4,000	23,600
Burma (Upper) . . .	90,400	23,300	1,64,000	33,300	1,01,700	4,18,200
Central Provinces . . .	12,400	25,400	19,300	68,600	96,400	2,22,100
Assam	48,900	79,000	7,000	2,27,000	71,400	4,33,300
Coorg	3,300	...	100	...	6,400	9,800
Ajmere	300	200	...	...	36,500	37,000
Baluchistan	6	...	...	25	9,869	9,900
Andamans	9,300	71,500	300	1,700	...	82,800
Berar	76,700	54,000	31,500	37,500	1,65,300	3,55,000
Madras	7,100	5,300	1,100	40,800	1,700	56,000
Bombay	26,100	2,34,900	3,100	42,800	6,16,300	9,23,200
TOTAL .	4,78,106	9,35,150	2,24,950	5,41,525	15,66,769	37,46,500

The gross revenue realized being R1,78,56,000, it follows that more than 17 per cent. of the total outturn of the forests was given away free of charge.

The following statement shows the revenue and expenditure under the various heads, with the proportion of the gross receipts expended :—

				Amount. ₹	
Gross Receipts	(a) Wood			1,34,19,420	
	(b) Minor forest produce			14,01,690	
	(c) Forest stamps and commutation fees for forest produce			5,63,460	
	(d) Grazing			15,99,840	
	(e) Revenue from forests not managed by Government			3,87,900	
	(f) Miscellaneous			4,84,300	
			TOTAL REVENUE	1,78,56,510	Proportion of Expenditure to gross Revenue.
				Amount. ₹	Per cent.
Expenditure — A Recurring	(a) Administration.	(i) Superior Staff		21,62,660	12·11
		(ii) Exchange compensation allowance.		1,82,180	1·02
		(iii) Subordinate Staff (including Rangers, Foresters and Guards),		14,49,314	8·12
		(iv) Office Establishments (including Contingencies).		8,08,500	4·53
	(b) Working.	(1) Extraction		29,76,020	16·67
		(2) Roads and Buildings		4,77,400	2·67
		(3) Fire-protection		3,09,340	1·73
		(4) Cultural operations		3,79,870	2·13
		(5) Live-stock, stores and plant.		2,40,230	1·34
		(6) Working-plans*		67,930	0·38
		(7) Rent for leased forests		1,41,510	0·79
		(8) Miscellaneous		95,080	0·53
	(c) Expenditure on realization of revenue from forests not managed by Government.			10,180	0·06
	(d) Forest Science and Education (including all "A" and "B" charges of Forest School).			83,746	0·47
			TOTAL	93,83,960	52·55
	B Extraordinary. (e) Forest Settlement			64,990	0·36
	(f) Forest Surveys			4,76,480	2·67
	(g) Forest demarcation			1,19,720	0·67
			TOTAL	6,61,190	3·70
			GRAND TOTAL EXPENDITURE	1,00,45,150	56·25
			Net Revenue	78,11,360	43·75

*Exclusive of "B" charges.

The details of financial results in the various provinces were as follows; the figures are throughout those for the Forest year :—

Bengal.—The surplus realized was R6,49,600, which is nearly 2 lakhs more than has ever been before realized. This favourable result was due to the supply of sleepers to the Rae Bareli-Benares railway, and can scarcely be expected to occur again for some time. Receipts under fuel, bamboos and minor forest-produce fell off considerably, whilst there was a rise under grazing, fodder, and miscellaneous sources of revenue. The surplus was largest in the Sundarbans Division (R4,09,000), but owing to the prevalence of famine it was less by some R50,000 than in the previous year.

North-Western Provinces and Oudh.—The Local Government remark—

"The financial results of the year were—

	R	R
Receipts		13,86,409
Expenditure—		
A.—Conservancy and works	4,74,159	8,74,053
B.—Establishments	3,99,894	
Surplus		5,12,356

These figures compare, Circle by Circle, with the figures of 1895-96 and with the averages of the three previous forest years (1893-94—1895-96) as follows :—

Circle.	Receipts.			Expenditure.			Surplus.		
	Average of three forest years, 1893-94 to 1895-96.	Forest year, 1895-96.	Forest year, 1896-97.	Average of three forest years, 1893-94 to 1895-96.	Forest year, 1895-96.	Forest year, 1896-97.	Average of three forest years, 1893-94 to 1895-96.	Forest year, 1895-96.	Forest year, 1896-97.
	R	R	R	R	R	R	R	R	R
Central . .	5,89,967	5,67,242	4,49,098	3,32,346	3,20,670	3,03,462	2,56,621	2,46,572	1,45,636
Oudh . .	5,94,858	4,98,648	4,80,589	3,17,079	3,01,272	2,64,194	2,77,779	1,97,376	2,16,395
School . .	4,04,618	4,00,972	4,56,722	3,02,475	3,09,926	3,06,397	1,02,143	91,046	1,50,325
Total for the Province.	15,89,443	14,66,862	13,86,409	9,52,900	9,31,868	8,74,053	6,36,543	5,34,994	5,12,356

There was thus a falling off in the gross receipts, as compared with the previous year, of R80,453, and of R2,03,034 as compared with the average of the triennial period preceding. On the other hand, the expenditure for the year under review was R57,815 less than in the previous year, and R78,847 less than that shown by the average of the triennial period.

The principal falling off in receipts occurred in the Central Circle under the heads of bamboos and dry timber. The expenditure in the Oudh Circle was R37,078 less than in the previous year, whilst in the Central and School Circles it decreased by R17,208 and R3,529, respectively. The School Circle yielded a large surplus, exceeding the surplus of the previous year by more than half a lakh of rupees, and this without regard to an excess outstanding balance in its favour at the close of the year of R1,18,107. The increased receipts in this Circle were due to large sales of sleepers to railways, of standing trees to contractors, and of fuel to the Commissariat Department. The revenue in the Jaunsár Division was the highest on record, and being mainly derived from deodár timber, or from trees sold before the scarcity set in, was fortunately not much affected by subsequent events."

Punjab.—The financial results are summarized by the Local Government as follows :—

"There was an increase of R48,371 in the gross revenue of the year, which amounted to R10,66,458, as compared with R10,18,087 in the previous year. This improvement was, however, more than counterbalanced by an increase of R64,239 in expenditure, the surplus thus being reduced from R3,36,702 to R3,20,834. The proportion in which the revenue of the Department was derived from the several sources in the two years is noted below :—

Year.	Timber.	Fuel.	Grass and grazing.	Other items.
	Per cent.	Per cent.	Per cent.	Per cent.
1895-96	33	37	20	10
1896-97	46	28	17	9

The increase in expenditure was mainly due to timber operations in the hills. Though the surplus shown above is less than in 1895-96, it appears from paragraph 62 of the report that the value of stock at depôts increased considerably, and if it were taken into account the balance in favour of the year would be R5,81,336, as compared with R2,88,245 in the previous year."

The following shows the financial results, under the three heads of work, for the three years 1894-96 :—

	1894-95.		1895-96.		1896-97.	
	Surplus.	Deficit.	Surplus.	Deficit.	Surplus.	Deficit.
	R	R	R	R	R	R
Departmental timber operations .	3,12,568	...	2,56,226	...	2,92,715	...
Other revenue	1,96,027	...	2,43,251	...	2,18,136	...
Expenditure	...	1,64,763	...	1,62,775	...	1,90,017
TOTAL .	3,43,832	...	3,36,702	...	3,20,834	...

The proportion of gross revenue spent on protection and improvement was 18 per cent., as compared with 15 per cent. during the previous year.

Burma.—The financial results compared with those of 1895-96 were as follows :—

	Circle.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross Revenue.
		R	R	R	Per cent.
Forest year.	Pegu	19,53,955	8,28,510	11,25,445	57·6
	Tenasserim	20,82,402	5,95,244	14,87,158	71·4
	Total, Lower Burma .	40,36,357	14,23,754	26,12,603	64·7
	Eastern	20,19,414	3,99,538	16,19,876	80·2
	Western	6,04,076	2,58,162	3,45,914	57·3
	Total, Upper Burma .	26,23,490	6,57,700	19,65,790	74·9
	Grand Total, Burma, 1896-97 .	66,59,847	20,81,454	45,78,393	68·7
	„ „ „ 1895-96 .	55,90,376	19,13,138	36,77,238	65·7
	Difference in 1896-97 .	+ 10,69,471	+ 1,68,316	+9,01,155	+ 3·3
Financial year.	Pegu	13,25,506	8,20,758	10,04,748	55·0
	Tenasserim	19,92,762	6,88,656	13,04,106	65·4
	Total, Lower Burma .	38,18,268	15,09,414	23,08,854	60·5
	Eastern	19,50,257	3,76,769	15,73,488	80·7
	Western	6,10,423	2,48,763	3,61,660	59·2
	Total, Upper Burma .	25,60,680	6,25,532	19,35,148	75·6
	Grand Total, Burma, 1896-97 .	63,78,948	21,34,946	42,44,002	66·5
	„ „ „ 1895-96 .	56,95,823	18,74,941	38,20,882	67·0
	Difference in 1896-97 .	+ 6,83,125	+ 2,60,005	+ 4,23,120	+ 61·9
	Average for the five years ending 1895-96. Lower Burma . .	29,85,562	11,40,385	18,45,177	61·8
	Average for the five years ending 1895-96. Upper Burma . .	22,45,537	5,45,699	16,99,838	75·7
	Average for the five years ending 1895-96. Total Burma .	52,31,099	16,86,084	35,45,015	67·8

The following statement shows the various heads under which the revenue was realized :—

	1895-96.	1896-97.	Increase or Decrease.
Lower Burma.	R	R	R
From timber and other produce removed from the forests by Government agency.	18,67,735	25,90,958	+7,33,223
From timber and other produce removed from the forests by consumers and purchasers. — Timber	8,52,118	7,13,793	—1,38,325
Firewood and charcoal	43,097	49,466	+ 6,369
Bamboos	74,753	67,306	— 7,447
Grazing and fodder grass	909	972	+ 63
Other minor produce	12,762	12,494	— 268
Confiscated drift and waif wood	1,81,118	2,25,072	+ 43,954
Duty on foreign timber and other produce	2,41,091	3,26,580	+ 85,489
Miscellaneous	49,404	49,716	+ 312
Total, Lower Burma	33,12,987	40,36,357	+7,23,370
Upper Burma.			
From timber and other produce removed from the forests by Government agency.	1,45,052	2,47,670	+1,02,618
From timber and other produce removed from the forests by consumers and purchasers. — Timber	17,05,905	20,29,327	+3,23,422
Firewood and charcoal	43,715	36,911	— 6,804
Bamboos	64,167	45,709	— 18,458
Grazing and fodder grass	21	190	+ 169
Other minor produce	2,34,976	2,13,113	— 21,863
Confiscated drift and waif wood	43,867	23,285	— 20,582
Duty on foreign timber and other produce	.....	.....	.....
Miscellaneous	39,686	27,285	— 12,401
Total, Upper Burma	22,77,389	26,23,490	+3,46,101

The Local Government remark :—

"The increase in Lower Burma was chiefly due to the high prices obtained from the sale of teak at Government auctions. The increase in Upper Burma was due to the larger extraction of timber by the Bombay-Burma Trading Corporation from the Pyinmana forests, the revenue realized under this head being nearly four lakhs in excess of the estimate."

The demand for Burmese teak continued, and there was a considerable advance on the high prices of the previous year. The average value per ton of teak exported from Moulmein and Rangoon rose to R83, against R74 in the previous year.

Central Provinces.—The Local Government thus explain the position—

"The following table compares the receipts and expenditure of the past two years :—

	1895-96.	1896-97.
Receipts.	R	R
Southern Circle	4,92,118	4,42,107
Northern "	4,28,244	3,20,193
TOTAL	9,20,362	7,62,300

	1895-96	1896-97.
Expenditure.	R	R
Southern Circle	4,72,726	4,59,757
Northern „	3,86,401	4,03,741
TOTAL	8,59,127	8,63,498
Surplus or Deficit.		
Southern Circle	+19,392	—17,650
Northern „	+41,843	—83,548
TOTAL	+61,235	—1,01,198

This is the first time in the history of the province that the Forest Department has shown a deficit, but in the circumstances no other result was to be expected. All the causes which in the previous year combined to produce a fall in the revenue were present during the year under report in an aggravated form. Private forests were worked at very low rates, and large concessions were made from Government reserves, while the deficient rainfall of the year acted directly on the forest receipts in various ways, as for instance in causing the total destruction of the valuable *gandhri* grass crop in Bilaspur.

The Government forests are, however, maintained primarily for the protection and benefit of agriculture, and in a year of famine they fulfil one of the principal objects of their existence in affording sustenance to men and cattle. The loss which they have sustained in the last two years must be looked upon as their contribution to famine relief. The value of the free grants is put at R1,52,089 in the Northern Circle against R1,01,387 in the preceding year. From paragraph 85 of the Southern Circle Report, which, however, is not quite clear on the point, it appears that the value of free grants in that Circle amounted to R70,042.

But for these free grants, then, there would have been a surplus of about 1¼ lakhs, and if the capital expenditure, calculated in the same way as was done in paragraph 12 of last year's Resolution, be also deducted, the account will stand as follows:—

	R
Receipts	7,62,300
Value of free grants	2,22,131
TOTAL	9,84,431
Current expenditure	7,74,906
Surplus	2,09,525
Percentage on gross earnings	21·3

Establishment charges have risen from R5,12,717 in the previous year to R5,35,245 during the year under report, the increase being principally in the Northern Circle, where the expenditure on account of compensation for dearness of grain was very much higher than in the Southern Circle. There was also a slight increase in the Southern Circle in the cost of the subordinate establishment; but the additional subordinate establishment, sanctioned last year by the Secretary of State, could not be appointed all at once, and most of the increase will appear in the accounts of the current year.

The districts which show the worst results financially are:—

	Deficit. R
Sangor	36,217
Balaghat	34,866
Damoh	18,628
Jubbulpore	14,622
Hoshangabad	12,355

These are all districts which suffered severely from famine."

Assam.—The following are the figures showing the financial results for the past five years:—

Year.	Receipts.	Expenditure.	Surplus.	Proportion of surplus to receipts.
	R	R	R	R
1892-93	4,20,930	2,76,948	1,43,982	34·2
1893-94	4,92,821	2,65,421	2,27,390	46·1
1894-95	4,44,706	2,81,652	1,63,054	36·7
1895-96	4,04,482	2,89,323	1,15,159	28·5
1896-97	4,40,936	2,82,191	1,58,745	36·0

The following table shows the revenue under main heads for the three years 1894-95—1896-97 :—

Budget heads.	1894-95.	1895-96.	1896-97.	Difference of last two years.
	R	R	R	R
I.—Timber and other produce removed from forests by Government agency	15,162	7,548	32,214	+24,666
II.—Timber and other produce removed from the forests by consumers or purchasers. (Traders)	2,67,460	2,71,490	2,61,417	—10,073
II.—Timber and other produce removed from the forests by consumers or purchasers. (Waste lands)	80,897	39,061	66,683	+27,622
III.—Drift and waif wood and confiscated forest-produce	8,014	5,788	5,237	—551
IV.—Revenue from forests not managed by Government	30,977	32,887	35,311	+2,424
V.—Miscellaneous	4,216	47,708	40,074	—7,634
Total	4,44,706	4,04,482	4,40,936	+36,454

The main increase was under timber removed from waste lands given out for cultivation, a source of revenue which is naturally very fluctuating.

Coorg.—The following shows the financial results of the year :—

Period.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross receipts.
	R	R	R	Per cent.
1896-97	84,014	77,203	6,811	8·10
1895-96	1,45,120	73,624	71,496	49·26
Difference in 1896-97	—61,106	+3,579	—64,685	—41·16

Ajmere.—The Chief Commissioner remarks :—

"Rupees twelve thousand, five hundred and thirty-two were realized, against an expenditure of R21,014, or a deficit of R8,482 on the year's working. Corresponding figures for the previous four years are given in the subjoined table :—

	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
	R	R	R	R	R
Receipts	16,909	14,343	12,887	15,380	12,532
Expenditure	18,771	15,696	14,794	16,467	21,014
Deficit	1,862	1,353	1,907	1,087	" 8,482

The revenue for 1896-97 was much below the average of the last four years, and compared with that of the preceding year is less by R2,848. This was mainly under fire-wood and charcoal, grazing and fodder-grass. The falling off in grass and grazing is due to an abundance of fodder. These receipts are highest during a period of scarcity due to deficient rainfall. In regard to fuel, the Extra-Assistant Conservator explains that large advances received from the fuel contractors were credited in the previous year, while the produce had to be supplied during the year under review."

Baluchistan.—The following, extracted from the review of the Forest Report by the Agent to the Governor-General of Baluchistan, explains the financial position :—

"The following table shows at a glance the financial results of the past year in comparison with those of the two years preceding :—

Year.	Revenue.	Expenditure.	Deficit.
	R	R	R
1894-95	15,191	44,548	29,357
1895-96	14,751	36,382	21,631
1896-97	15,942	28,478	12,536

The results of the year under report are better than was anticipated, and reflect credit on the Forest officer. The decrease of R9,095 in the deficit as compared with 1895-96, and R16,821 as compared with 1894-95, is encouraging."

In the Zhob valley an expenditure of R980 was incurred on forest conservancy, whilst the revenue realized, almost entirely royalty on wood, amounted to R4,142.

Andamans.—The following shows the financial results of working the forests for the years 1895-96 and 1896-97 :—

Year.	Receipts.	Charges.	Surplus.	Proportion of surplus to gross revenue.
	R	R	R	Per cent.
1896-97	2,55,444	1,61,009	94,435	36·9
1895-96	3,82,174	3,31,640	50,534	13·2
Difference in 1896-97 .	—1,26,730	—1,70,631	+43,901	+23·7

The large falling off in receipts is due to the payment for large consignments of timber sent to England being made during the year 1895-96; but a largely decreased expenditure enabled the department to show an increased surplus of nearly R44,000. The price of padouk remained low in London, the best price realized being 3*s.* 1*d.* per cubic foot.

Berar.—The financial results of the four years 1893-94 to 1896-97 have been as follows :—

Year.	Receipts.	Charges.	Surplus.
	R	R	R
1893-94	4,79,475	2,64,318	2,15,157
1894-95	4,66,014	2,49,118	2,16,826
1895-96	4,95,899	2,27,862	2,68,037
1896-97	4,96,717	2,54,696	2,42,021

Notwithstanding famine and distress, the receipts were slightly more than in the previous year, chiefly due to a large increase of R37,000 in the sales of grass, nearly all other heads showing a decrease. The expenditure rose by R27,000, mainly owing to the introduction of a new system of paying remuneration to village officers on forest collections which involved the payment of considerable arrears in some divisions.

Madras.—The Madras Government summarize the results as follows :—

"The financial result of the year's working is compared with that of the previous year in the following statement :—

—	Receipts.	Charges.	Surplus or Deficit.	Proportion of surplus to gross revenue.
1895-96.	R	R	R	Per cent.
Northern Circle	7,23,859	3,83,877	+3,39,982	47
Central „	9,39,733	5,60,995	+3,78,738	40
Southern „	5,04,038	5,24,116	—20,078	...
TOTAL .	21,67,630	14,68,988	+6,98,642	32
1896-97.				
Northern Circle	5,97,422	4,65,280	+1,32,142	22
Central „	9,48,547	5,84,782	+3,63,765	38
Southern „	6,42,948	5,37,815	+1,05,133	16
TOTAL .	21,88,917	15,87,877	+6,01,040	27
Increase or Decrease in 1896-97.				
Northern Circle	—1,26,437	+81,403	—2,07,840	...
Central „	+8,814	+23,787	—14,973	...
Southern „	+1,38,910	+13,699	+1,25,211	...
TOTAL .	+21,287	+1,18,889	—97,602	...
Average for the four years ending 30th June 1896	19,34,302	14,08,318	5,25,984	27

The surplus of revenue over charges was R6,01,010, *i.e.*, about one lakh less than the surplus in the previous year. In so far as the decrease has to be ascribed to the free concessions made in the affected districts of the Northern Circle, the result must be considered very satisfactory."

Bombay.—The Bombay Government in their review of forest administration for the year say—

"The financial results of the year under review and of the preceding year are compared in the following statement :—

Circle.	Receipts.		Expenditure.		Net Revenue.		Increase or decrease in net revenue in
	1895-96.	1896-97.	1895-96.	1896-97.	1895-96.	1896-97.	1896-97.
	R	R	R	R	R	R	R
Northern . . .	7,83,283	5,83,437	2,97,437	3,19,881	4,85,846	2,63,556	—2,22,290
Central . . .	7,59,605	7,01,365	5,27,207	6,93,400	2,32,398	10,965	—2,21,434
Southern . . .	14,98,084	14,10,798	8,54,353	8,76,557	6,43,731	5,34,241	—79,490
Sindh . . .	4,65,745	3,12,297	3,24 807	1,34,209	2,30,938	1,78,088	—52,850
TOTAL .	35,06,717	30,10,897	19,13,804	20,24,047	15,92,913	10,16,850	—5,76,063

The decrease in the total net revenue amounted to five and three-quarter lakhs. The principal causes have been sufficiently explained above (famine and plague); subsidiary causes were: in the Central Circle, increase of expenditure on establishments as compensation for famine prices, and special provision of work as a form of famine relief; and in Sindh the impossibility of effecting recoveries from contractors within the year. On the other hand, receipts in the Southern Circle were swelled by the reduction of outstandings of the previous year. In Sindh the cessation of the departmental operations reduced the expenditure by a lakh and a half."

CHAPTER V.

I.—Establishment.

Of the 19 Conservators 14 remained on duty throughout the year. The sanctioned strength of the Deputy and Assistant Conservators stood at 174, of whom 159 remained on duty throughout the year. Mr. McDonell continued to be in charge of the forests of the Kashmir State, and Mr. Slade remained on deputation in Siam. The Government of India arranged to further assist the authorities of the latter country in their efforts to form a reliable Forest Department, and the services of four more officers were lent to them. At the present time there are five officers of the Indian Forest Department whose services have thus been lent to Siam.

The scheme under which 43 appointments are to be transferred from the Imperial to the Provincial Service continued to receive attention, and at the close of the year 12 posts had been so transferred. At the present moment, September 1898, the number of posts which have been transferred is 14. The number of posts in the Provincial Service stood during the year at 103, of which 87 were filled by permanent occupants.

The chief event of the year under this head, however, was the sanction given by the Secretary of State to the reorganization of the Subordinate Forest establishment, a scheme which had been under consideration for 10 years. Under this scheme the prospects of the subordinate staff have been much improved; 1,133 new permanent posts have been created, and a total expenditure of ₹11,90,052 (as against ₹,876,978) per annum has been sanctioned. The question of the reorganization of the clerical staff still remains to be dealt with, and the difficulty of the present Forest Office establishment to deal with the ever increasing work, and the poor prospects of the men employed, forms the subject of complaint in many Forest Circles.

The conduct of the Subordinate Forest establishment is on the whole well reported on, and it is satisfactory to record that in both Circles of the Central Provinces, the bad state of discipline in which was remarked on last year, much improvement has taken place. In Madras and Bombay matters still appear unsatisfactory in this respect, and in the latter presidency no less than 116 subordinates were dismissed for misconduct. The reorganization of the service, and the better prospects ensured thereby, will, it is trusted, tend to improve the conduct of the subordinate staff.

II.—Experiments.

The plantations of *Robinia pseudo-acacia*, referred to in the Review for the year 1895-96, continued to thrive. The young trees are doing excellently at Simla and in the Rawalpindi, Jhelum and Chamba Divisions, as well as in Baluchistan, the dry climate of which appears to suit the tree. Experiments made with *Robinia* at Chakrata were, however, unsuccessful. Experimental plantations of *Albizzia lophanta* have been carried out with success at moderate elevations in the Punjab, and this tree, with the *Robinia*, is likely to prove of great value for the reboisement of bare stony slopes. At Ranikhet, in the North-Western Provinces, a plantation of *Eucalyptus* has been placed under treatment as coppice for the supply of fuel, and it is likely that this quick-growing tree may, in good soil, prove of the highest use for this purpose. The

sugar maple introduced into Kulu is reported to be thriving, as are also the orchards of sweet chestnuts which have been formed in Bashahr. In Madras, as usual, a number of experiments with exotics were carried out, but the year was a very unfavourable one. *Acacia decurrens* is doing well on the Nilgiris; attempts to raise the plantation of mahogany trees (*Swietenia macrophylla*) have been made in many places, and the tree is said to be growing well in Ganjam, Chingleput, and in the Alagar valley of Madura. In many other places the attempts have been unsuccessful, and the tree has suffered much from the attacks of a borer. In Bengal the *Alnus nepalensis* has proved of great value in planting up a landslip which is now covered with seedlings of this tree, and further damage from which, it is hoped, has by this means been averted. It would be interesting to try this tree, as well as the *Robinia*, on the shifting hills of the Hoshiarpur *chos*. In Burma, experiments were made in rhea planting; those at Toungoo and at Prome were a failure, but in the Eastern Circle the young plants are, as a rule, doing well.

The distillation of resin at Dehra Dun may now be said to have passed the experimental stage, and to have proved a distinct commercial success. About 1,000 maunds of crude resin were collected during the year, the trees tapped yielding an average of 10 seers each during a period of 14 months. The bulk of the crude resin is taken to Dehra Dun, where it is manufactured into colophony and turpentine, and it has been found that for each maund of resin so treated a profit of R2 can be made. Two thousand six hundred and seventy-six maunds of crude resin yielded 1,993 maunds of colophony and 4,807 gallons of turpentine. Arrangements were commenced to start similar works in the forests of the Naini Tal Division, and 450 maunds of resin were collected. So far as the figures are available, it appears that the yield of resin from the Ranikhet pines is considerably less than that of the Jaunsar pines. Further information is, however, required on this point.

The quantity of colophony and turpentine consumed in India is very large, and becomes greater year by year. The following extract from a note by the Reporter on Economic Products may in this connection be here reproduced :—

"The point regarding which my opinion is asked appears to be the present industries and possible future industries that use or may use up resin, colophony, and turpentine. As I was in some doubt on certain points, I addressed the Chamber of Commerce and the Government Medical Stores Department.

"The chief industries for which colophony and turpentine are required are—

1st—Soap-making.
2nd—Paper-making.
3rd—Lac manufacture.
4th—Minor industries, such as tinsmiths, paint and varnish makers, etc.
5th—Medicine (turpentine).

"*Soap.*—During a conversation I had the other day with the Manager of the Meerut Soap Company, he led me to understand that their consumption of colophony was a yearly expanding one, and that at present they required about 600 casks.

"*Paper.*—The Chamber of Commerce, Bengal, say that the four local paper mills are estimated to use up about 8,000 cwt.

"*Lac.*—The lac industry takes another 8,000 cwt. or so.

"The amount used up by the minor industries I have no means of estimating.

"*Turpentine.*—Some conception of the quantity of turpentine required by India may be obtained from the fact that the Government Medical Stores import about 2,000 lbs. annually.

"*Trade Returns.*—The following table may be given from the returns of foreign trade

to show the total imports. It reveals the fact that for some years past the trade has been expanding and very considerably exceeds the amount adduced in the above abstract:—

Years.	Bengal.		Bombay.		Sindh.		Madras.		Burma.		Total quantity.	Total value.
	Cwt.	R	Cwt.	R	Cwt.	R	Cwt.	R	Cwt.	R	Cwt.	R
1877-78 . . .	11,295	49,018	1,557	7,563	12	60	390	2,014	111	709	13,365	59,364
1892-93 . . .	21,719	90,512	8,027	33,765	572	2,631	931	4,736	326	2,220	31,575	1,33,914
1893-94 . . .	35,285	1,55,535	14,929	63,877	671	2,779	3,097	15,410	325	1,973	54,307	2,44,574
1894-95 . . .	33,728	1,66,496	7,031	33,561	197	875	2,872	14,388	118	564	43,946	2,15,884
1895-96 . . .	36,620	2,15,813	9,266	47,597	1,054	5,383	3,938	21,433	293	1,587	51,221	2,91,813
1896-97 . . .	31,163	1,91,551	12,482	64,906	1,020	5,430	2,740	14,599	470	2,341	47,880	2,81,930

"The imports of resin in 1877-78 were valued at R59,364 and last year at R2,81,930.

"There would seem no reason why India should import any resin, colophony or turpentine. The Agricultural Ledger No. 14 of 1896 shows that the Indian article (examined by Professor Armstrong) was 'of the highest quality, equal to the best French, and would form a most valuable article of commerce.' The regular supply of that product would no doubt benefit very greatly the existing industries of India and would possibly lead to the establishment of others.

"I therefore concur with the Inspector-General of Forests in the desirability of Government pioneering in this matter."

The attention of all Conservators in whose Circles pine forests are present is, therefore, called to this important question.

The most considerable endeavour which has hitherto been made in India to form plantations of the rubber tree (*Ficus elastica*) is in Assam, where the Charduar plantation, now covering an area of 1,659 acres, has been successfully constituted; an area of 12 acres was newly planted up during the year. Attempts to propagate this tree are also being made in Madras, where the plants put down in Manantoddy and at Kuppadi are doing well; in Burma, trees have been planted out with some success in the Tharrawaddy forest garden at Kimpadi and at Palon. It is interesting to note that efforts are being made to establish plantations of this tree in Egypt, and the Indian Forest Department has been glad to supply seed to the authorities there for this purpose. The subject being of considerable general interest, the following note by Mr. D. P. Copeland, Deputy Conservator of Forests, showing how rubber trees are grown in Assam, may well be placed on record:—

Ficus elastica.

"The Indian rubber-fig or caoutchouc tree is indigenous to Assam, where it is found a dominant tree in the evergreen forests. It requires an exceedingly damp atmosphere, and the best natural rubber trees are met with in the forests at the foot of the hills, or on the hills themselves up to an elevation of 2,500 feet.

Natural germination.

In its natural state, the rubber tree starts from seed dropped by birds in the forks of other trees, often 20 or 30 feet or even more from the ground, where it germinates, and the young plant remains an epiphyte for years until its aerial roots touch the ground; as soon as this takes place, the little epiphyte changes rapidly into a vigorous tree, throwing out numerous aerial roots which gradually envelope the tree on which it first began life and often kill it out.

Having started life so high up, it soon throws out branches which overtop the surrounding trees, and the numerous aerial roots, which fall from these and establish connection with the ground, in a few years enable it to dominate the forest growth around it.

Seed.

The seed of this tree is contained in fig-shaped fruit, about 75 seeds being found in one good sound fig. The fruit first begins to form on the trees in March and ripens from May onward to December. On some trees the whole crop ripens and falls off by June, but, as a rule, the rubber tree has fruit on it from April right up to December, the figs forming, ripening and falling off the whole of the rains.

After collection the figs have to be carefully dried and mixed with pounded charcoal, which preserves the seed for several months.

Seed beds.

In the Charduar rubber plantation nursery, for a seed bed 40′ × 3½′, two to three seers of pulverized rubber seed, 10 seers ash and 20 seers of vegetable loam or good soil, is well mixed in a half cask and spread evenly over the bed, and then lightly tamped down and watered. Such a bed should yield, with good germination, 2,000 seedlings and should be sufficient for putting out 100 acres of rubber, planted 70′ × 35′. The beds must be well-raised and drained, the soil being prepared in the same way as for vegetable or flower seed. If sown in boxes, these should be put under the eaves of a house; if in beds, light removable shades must be put up to keep off the direct rays of the sun. The shades should be removed during rainy or cloudy weather and at night.

Light sandy loam is most suitable for seed beds; if the soil is stiff, charcoal dust should be mixed with it to make it porous and prevent caking. The bed or boxes must never be allowed to get dry.

Sowing.

This should be done exactly in the same way as for vegetable or flower seed which requires transplanting after germination. The figs are broken between the hands. As the seed is very minute, the particles of the fruit are left with the seed and sown with it, no attempt being made to clean or separate the pulverized figs. In order to distribute these minute seeds evenly over the seed beds, or boxes, a certain quantity of ash and soil is mixed with them.

Germination.

Germination takes place from the end of April to the end of the rains. Seed sown between October and January requires daily watering and screening from the sun, and will not germinate before the end of April or the beginning of May, but seed sown any time during the rains will germinate in a few days (from five days to a fortnight). It follows that the best time for sowing seed is during the rains—that is from June to September.

The embryo appears on the germination of the seed as a seedling having a pair of opposite cotyledons with an entire margin destitute of incisions or appendage of any kind, with the exception of the notched or emarginate apex, oval in general outline, green in colour and of a glassy smoothness. The second pair of leaves show a tendency to the alternate arrangement on the stem but appear at the same time. Their shape and venation are very different from those of the primary leaves, for they have a central midrib and a distinctly coarsely-crenated margin. The third pair of leaves do not appear simultaneously, and are distinctly alternate with a marked reddish colour: after this the plant is easily recognized.

Pricking out.

When the seedlings are one to two inches high in the seed beds or boxes, they should, be transplanted into nursery beds, and put out in lines about a foot from each other. The nursery beds should be well raised and drained, but the soil need not be so carefully prepared as for the seed beds. Here the plants are kept till the following rains, when they are dug up and taken to stockaded nurseries in the forest, and put out 5′ × 5′ on raised well-drained beds, where they remain for two years till they are required for planting operations.

Forest nurseries.

Almost every animal will eat the young rubber plants; it is, therefore, impossible to plant out small seedlings in the forest owing to the destruction by wild elephants and game, unless each individual plant is carefully fenced in. As this is too costly, and the rubber after it is 1–2 feet in height is very hardy and can be transplanted, with ordinary care, at any time of the year (the best time in Assam is between May and July), the seedlings are kept in stockaded nurseries in the forest where planting operations are to take place, and remain there till they are 10 or 12 feet high, that is, about three years after germination, when they are dug out and the roots are cut back 18 inches right around the plant and planted on the mounds in the forests.

Planting operations.

In artificial planting it is found that the rubber grows best on mounds. Lines are cut through the forest 20 feet wide and 70 feet apart from centre to centre; in these lines 15 feet stakes are put up 35 feet apart. Round each stake a mound is thrown up four feet high. The base of the mound is about ten feet in diameter and they taper to four feet on the top; on this mound the rubber tree is planted, care being taken that the roots are carefully spread out before they are covered up with earth. To prevent animals pulling the plants, and wind blowing them down, they are tied to the stakes.

Cuttings.

The rubber tree can readily be propagated from cuttings, if only perfectly ripe young branches or shoots are used, but the tree raised from cuttings does not appear to throw out aerial roots, and, as the future yield of the tree probably depends on its aerial root system, it is questionable whether trees raised from cuttings ought to be used except where required only as a shade-giver, such as in an avenue. In the Charduar rubber plantation, propagation by cuttings was given up very early, that is about 1876, the plantation having been commenced in 1873.

The best time to take cuttings is May and June.

General.

The rubber grows equally well on high land or low land, in forest land or grass land, so long as it is planted on a mound and its roots are not exposed to the sun. It is a surface feeder, but, as soon as its roots appear above ground, they must be covered with fresh earth until such time as the tree has formed a sufficient leaf canopy to protect itself."

In Madras considerable attention has been paid to the cultivation of another rubber-yielding tree, the *ceara*. The plants put out in Ganjam in 1895-96 are doing well, also those in North and South Malabar. Three hundred and nine trees were tapped, but the average yield per tree was only 1 oz. of rubber. Twenty-one trees of *Ficus elastica* tapped in the Charduar plantation in Assam yielded an average of 1 seer of rubber each. The subject of extending the plantations of this tree has lately been fully considered, and it has been decided to at once start experiments on a fairly large scale in the Mount Stuart forests in North Coimbatore.

Experiments to extend the area under lac by artificial cultivation were made at Rampur in Dehra Dun, and in the Central Provinces, but owing to the dryness of the season no great measure of success was attained. In Berar, where this question has attracted considerable attention, further experiments were postponed until a more favourable season. The fact, however, that the Rewah State in Central India has been remarkably successful in the exploitation of lac, gives ground for believing that the business can be much expanded in the Northern Circle of the Central Provinces.

The question of the possibility of preparing extracts of barks, etc., containing tannin, and the saving in the expense of carriage which might be thus effected, continued to attract attention. Arrangements were made and a series of experiments were set in hand in order to ascertain the kinds of trees, the extracts of the bark, fruit, etc., of which were likely to prove most valuable as tanning agents. The results attained up to date show at least that we have in our Indian forests a very large quantity of material rich in tannin which, could it but be placed on the market at a reasonable price, could not fail to prove the subject of a most important and lucrative trade. The experiments which are being made are being carried out, first, in order to ascertain the kinds of material likely to prove most valuable, and, in the second place, to find out the most convenient and economical form in which they can be presented to the consumer.

III.—Exports of Forest-produce.

The following table gives the amounts and value of various articles exported from India during the year :—

Articles of Forest-produce.	Quantity, in tons of 20 cwt.; in the case of Teak, cubic tons.		Valuation at port of shipment in 1896-97.	
	Average of five years 1891-92 to 1895-96.	In 1896-97.	Total.	Per ton.
				R
Caoutchouc	453	311	8,98,488	2,889
Lac—				
Button	1,420	1,401	18,95,911	1,353
Shell	6,095	8,786	1,19,35,957	1,358
Stick and other kinds	85	135	1,66,750	1,235
Lac-dye	8	...	...	...
Sandal-wood, ebony and other ornamental woods	Information	not available	5,91,886	...
Cutch and gambier	9,522	6,101	23,99,533	393
Myrabolams	44,120	44,968	36,14,315	80
Teak	54,503	64,221	68,64,829	107
Cardamoms	120	29	1,15,581	3,985
Total in 1896-97	...	...	2,84,83,250	...
„ 1895-96	...	...	3,50,15,022	...
Decrease in 1896-97	...	...	65,31,772	...

The value of exports from the country thus fell off by no less than R65,32,000 as compared with that of the previous year, due almost entirely to the disastrous effects of the plague and famine. The chief articles which show a falling off are caoutchouc (R93,000), button lac (R17,33,000), shell-lac (R26,95,000), sandal-wood, etc. (R3,45,000), cutch and gambier (R14,00,000), and myrabolams (R4,00,000).

With regard to the exports of teak timber, the following note by the Bombay-Burma Trading Corporation may be quoted with advantage :—

"Prices in the Europe market were well maintained throughout the year, cargo timber (square) selling at about £12 to £12 10*s*., whilst the price of Europe planks, ordinary market specifications, advanced from £11 10*s*. to fully £13 10*s*. per ton of 30 cubic feet.

Consumption continued at the rate of nearly 70,000 tons per annum, so that, in spite of continuously heavy shipments from Burma as well as from Siam, there has been no increase in the stocks in all the principal distributing centres.

Combined with an unusually heavy demand for ship-building, specially naval constructions for the British as well as Foreign Governments, there has been an increased demand for rolling stock construction, resulting in the total consumption being considerably in excess of the average of previous years.

Siam has again contributed nearly 20,000 tons of the imports into Europe markets. The floating season, 1896-97, has been productive of nearly 60,000 logs against 65,000 in the preceding season."

IV.—Technical Education and Recruitment.

Eight young Forest officers, having completed their course of training at Cooper's Hill College, came to India towards the end of 1896 and were posted—

1 to Bengal,
2 to the North-Western Provinces and Oudh,
2 to Burma,
2 to the Central Provinces,
1 to Assam.

Six officers were selected by competition in England to undergo the Cooper's Hill course, which continues to be under the professional guidance of Dr. Schlich, late Inspector-General of Forests to the Government of India. At the Dehra Dun Forest School, which is the training ground for Rangers and officers of the Provincial Service, the course of training remained practically unchanged. At a meeting of the Board of Control held at Dehra in March 1897, however, it was decided that it would be very desirable to insist that candidates for the School should undergo a course of practical training in the forests before being admitted to the School. It has since been decided by the Government of India that it will be sufficient if this course of training lasts for 3½ months, and both stipendiary and private students will in future be obliged to undergo it. It will also be a great advantage if Native States will arrange that students under deputation to the School should have a similar course of practical training, either in the forests of the State deputing them or in adjacent Government forests. The number of students sent from Native States to be trained at the Dehra Forest School is steadily increasing, and during the year 1896-97 no less than 11 such students attended the School. This is very satisfactory, and shows that the rulers of Native States are gradually realizing the importance of managing their forests under correct principles, and the necessity of obtaining properly trained subordinates in order to do so.

The Directorship of the School was held for 11 months of the year by Mr. J. W. Oliver, who relieved Mr. Gamble on the latter proceeding on furlough on the 1st August. Mr. Gleadow continued to act as Deputy Director. The other members of the School staff were Messrs. Osmaston, Gradon and Rogers, Instructors, and Babu Kanji Lal, Vernacular Instructor. The staff was also assisted by the Director, Botanical Department, Northern India, the Assistant Agricultural Chemist, the Deputy Superintendent of the Indian Museum, and the officers of the School Circle. The number of students attending the School fell to 75, as against 83 in the previous year and 106 in the year 1894-95, a result owing, it is thought, to the greater caution with which stipends were granted during the year. It is believed, however, that under the better prospects which the recently sanctioned reorganization of the Provincial Service has given, the number of students who will come to the School at their own expense will gradually increase.

V.—Forest Administration in Native States.

Copies of their Forest Administration reports have been received from Kashmir, Mysore, Jeypur, and Jodhpur. The administration of the forests in Kashmir remained in the charge of Mr. McDonell. There are now in this State 1,824 square miles under forest management, of which 440 square miles are estimated to contain deodar. The deodar-bearing localities are well

known, and it is unlikely that the deodar area under the Forest Department can be much increased. About half the forest area on the books of the Department has been wholly or partially demarcated, but much remains to be done. Excellent results attended the efforts to prevent fires, only 9,500 acres being burnt over. The financial results of the year's working were very satisfactory, there being a surplus of R6,60,000, which is R2,74,000 more than in the previous year. The principal work remaining in Kashmir is the completion of the demarcation and survey of the forests, and the framing of organized plans for working them, under which the annual outturn which may be removed without danger will be ascertained and not be allowed to be exceeded.

In Mysore there are 1,370 square miles of State forests and 363 square miles of reserves. Considerable attention is being paid to settlement and demarcation work, and large additions to reserves may shortly be expected. A start has been made in the preparation of working-plans, by the framing of a scheme for the Muthodi State forest which was nearing completion at the close of the year. Rupees 11,000 were expended on buildings and only R560 on roads and bridges, to the construction of which perhaps more attention might with advantage be given. Attention was paid to the general protection of the forests, and 313 cases of breaches of forest rules were prosecuted before the Courts. Fire-protection was also successful on the whole, 94 per cent. of the area attempted to be protected having been saved from fire. The financial results fell off and showed a decrease of R3,29,000, due to the non-disposal of a large quantity of sandalwood.

In Jeypur, considerable attention was paid to forest conservancy, and the State forests now cover an area of 180,000 acres, the net income from which was R17,000. It is, however, said by the Superintendent that this area is quite inadequate to meet the forest requirements of the State, that fuel is becoming dearer, and that cowdung, which ought to be used as manure, is used as firewood. This being the case, it is hoped that it will be found possible to set aside further areas as permanent forest estates. The preparation of working-plans for the existing forests is also greatly to be desired. It is noticed with regret that an experiment for the propagation of the lac insect, which promised to be highly successful, was put a stop to, owing to the fear that the trees would be rendered leafless and that there would be no shelter left in the forests for game. This fear is groundless, for the lac only flourishes on certain kinds of trees, and there would always remain numerous other kinds to afford ample shelter for animals.

In Jodhpur the area of forests managed as such is 193,000 acres, and the report shows that good attention has been paid to the protection of this area from injury by the hand of man, cattle and fires. It is noticed with much satisfaction that protection from fire was highly successful, and that out of 188,000 acres placed under protection only 1,596 acres were burnt. Financial results were bad owing to the prevailing scarcity, the surplus realized being only R3,175. In 1891-92 the surplus was R14,779, and with better times it is certain that the revenue will again rise to, if not surpass, the figures of former years.

Summary of the Revenue and Expenditure

Budget Heads.	Bengal Presidency (British									
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmere.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	...	5,19,990	4,47,630	7,11,740	24,06,010	1,43,460	66,760	34,010	55,290	1,080	3,530
II.—Timber and other produce removed from the forests by consumers or purchasers.	4,100	8,08,460	9,25,750	3,14,420	8,38,850	23,61,630	6,79,200	3,20,000	36,680	10,780	1,180
III.—Drift and waif wood and confiscated forest produce.	...	7,990	9,680	19,550	2,14,030	25,550	2,310	4,990	...	30	10
IV.—Revenue from forests not managed by Government.	...	...	15,840	2,210	3,09,920	...	...	36,210	...	...	10,350
V.—Miscellaneous	...	34,780	45,920	29,800	49,460	30,020	25,030	41,230	1,030	480	390
Total Revenue .	4,100	13,70,850	14,44,820	11,07,720	38,18,270	25,60,630	7,73,300	4,36,440	93,000	12,370	15,460
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	710	2,37,530	2,22,320	2,74,530	6,08,370	53,000	28,870	4,030	12,620	310	660
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	56,720	33,210	3,170	14,500	5,450	1,16,540	27,500	...	110	...
III.—Drift and waif wood and confiscated forest produce.	...	1,870	6,820	11,000	72,010	15,990	40	50	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	3,920	...	4,390	...	...	...	...	...	1,870
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	13,050	37,870	...	...	...	11,010	...	3,090	...
VI.—Live-stock, stores, tools and plant	...	19,310	20,500	3,410	35,090	38,400	13,850	11,710	2,980	230	160
VII.—Communications and buildings .	...	50,610	92,510	45,170	51,020	36,030	20,370	20,650	7,230	450	600
VIII.—Demarcation, improvement and extension of forests.	210	33,760	1,06,210	34,910	2,65,870	71,200	2,30,760	31,210	11,330	2,130	2,010
IX.—Miscellaneous	...	1,620	11,090	820	6,220	4,850	4,400	1,740	1,270	160	20
Total A.—Conservancy and Works .	920	4,03,450	5,09,970	4,10,960	10,57,770	2,25,520	4,24,930	1,07,960	35,430	6,490	5,320
B.—Establishments.											
I.—Salaries	62,970	2,33,210	3,29,450	2,44,750	8,75,530	3,36,630	4,41,120	1,43,240	29,000	13,560	20,670
II.—Travelling allowances . .	11,830	37,610	41,760	40,970	47,390	32,020	41,030	20,860	5,380	1,230	2,050
III.—Contingencies	3,240	15,770	25,130	26,620	22,600	11,310	43,910	9,950	1,720	730	730
Total B.—Establishments .	78,040	2,86,590	3,96,340	3,12,340	4,45,520	4,00,010	5,26,060	1,74,050	36,200	15,520	24,450
Grand Total of Expenditure .	78,960	6,90,040	9,06,340	7,23,300	15,03,290	6,25,530	9,50,990	2,82,010	71,630	22,010	29,770
Surplus .	...	6,80,810	5,38,480	3,84,420	23,14,980	19,35,150	...	1,53,430	21,370	...	...
Deficit .	74,860	...	...	...	...	...	1,77,670	...	...	9,640	14,310

* Includes salary of the Inspector-General, and Assistant

DIX I.

of the Forest Department in India for the Financial year 1896-97.

Territories).			Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand Total.	Budget Heads.
Andamans.	Forest School	Forest Surveys (Imperial).							
R	R	R	R	R	R	R	R	R	REVENUE.
3,57,560	...	...	47,47,060	3,99,420	11,69,700	63,15,180	...	63,15,180	I.—Timber and other produce removed from the forests by Government agency.
4,050	...	...	63,04,830	17,63,300	17,70,930	98,41,050	5,12,850	1,03,56,900	II.—Timber and other produce removed from the forests by consumers and purchasers.
...	...	...	3,14,070	10,450	5,490	3,30,010	230	3,30,240	III.—Drift and wait wood and confiscated forest produce.
...	...	...	3,71,530	...	13,370	3,87,900	...	3,87,900	IV.—Revenue from forests not managed by Government.
760	2,850	400	2,62,170	1,26,160	73,220	4,61,550	4,740	4,66,290	V.—Miscellaneous.
3,62,370	2,850	400	1,20,02,650	23,03,330	30,32,710	1,73,38,690	5,17,820	1,78,56,510	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
2,64,700	...	...	17,08,610	2,01,960	5,15,720	24,26,290	...	24,26,290	I.—Timber and other produce removed from the forests by Government agency.
220	...	...	2,37,720	97,780	43,700	3,99,200	40,230	4,39,430	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,07,750	2,270	250	1,10,300	...	1,10,300	III.—Drift and wait wood and confiscated forest produce.
...	...	...	10,130	...	...	10,130	...	10,130	IV.—Revenue from forests not managed by Government.
...	...	...	63,920	17,440	43,490	1,25,950	15,560	1,41,510	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
22,800	180	2,500	1,77,450	43,810	21,350	2,36,610	3,800	2,40,410	VI.—Live-stock, stores, tools and plant.
3,920	280	...	3,22,010	93,800	34,550	4,57,360	20,320	4,77,680	VII.—Communications and buildings.
160	...	4,960	8,06,750	3,09,100	2,75,640	13,91,830	26,500	14,18,330	VIII.—Demarcation, improvement and extension of forests.
4,490	3,280	20	33,680	16,050	41,860	91,590	770	93,360	IX.—Miscellaneous.
2,96,300	3,740	7,480	34,96,240	7,83,510	9,76,560	52,55,310	1,07,180	53,62,490	Total A.—Conservancy and Works.
									B.—Establishments.
17,760	56,160	18,310	23,22,440	5,91,530	8,31,370	37,45,340	1,09,400	38,53,440	I.—Salaries.
2,100	4,680	...	3,19,010	1,15,790	1,17,940	5,43,740	15,140	5,58,880	II.—Travelling allowances.
440	2,800	6,180	1,71,130	44,470	43,290	2,58,890	11,450	2,70,340	III.—Contingencies.
20,300	63,640	24,490	28,03,580	7,51,790	9,92,600	45,47,970	1,34,690	46,82,660	Total B.—Establishments.
3,16,600	67,380	31,970	62,99,820	15,34,300	19,69,160	98,03,280	2,41,870	1,00,45,150	Grand Total of Expenditure.
45,770	...	...	57,02,830	7,69,030	10,63,550	75,35,410	2,75,950	78,11,360	Surplus.
...	64,530	31,570	...	...	...	...	...	...	Deficit.

Inspector-General of Forests and their establishments an contingencies.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1872-73 to 1896-97.

REVENUE.

Provinces.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial .	2,771	1,225	1,144	1,165	2,490	1,56,772	16,716	17,214	18,537	27,107	30,732	32,907	26,571	14,703	4,183	4,817	4,017	4,759	6,370	6,688	5,210	2,680	4,960	2,650	4,100
Bengal . .	1,49,852	1,79,366	1,85,932	1,98,271	2,22,101	4,25,223	4,16,027	4,49,521	5,61,310	6,33,731	6,93,959	6,91,331	5,71,152	5,97,132	6,53,631	6,57,791	6,76,907	7,68,716	7,27,392	7,89,553	7,41,330	8,91,610	7,95,670	9,18,710	13,70,850
North-Western Provinces and Oudh . .	19,39,115	19,32,677	13,63,258	12,61,356	11,50,671	12,03,103	11,26,758	10,39,956	9,42,223	10,66,091	10,13,101	15,11,333	15,72,319	14,61,495	15,73,556	12,47,454	14,62,892	17,15,159	16,37,875	17,31,514	16,52,540	17,09,960	16,58,250	16,01,310	15,44,620
Punjab . .	6,52,935	7,32,533	8,31,674	9,09,831	5,88,451	6,83,711	5,00,619	6,49,819	6,71,678	6,83,308	7,05,703	9,10,177	7,49,352	8,50,419	11,27,277	7,86,936	10,45,768	9,21,713	8,31,370	10,20,971	8,12,630	9,13,300	10,32,430	10,14,500	11,07,720
Burma (Lower) .	8,27,569	10,63,021	10,71,602	17,79,020	15,51,403	16,03,052	11,37,562	11,80,150	15,16,613	22,31,804	25,08,836	25,09,275	16,70,982	20,23,859	19,95,667	22,18,897	26,09,305	31,31,716	26,77,671	23,58,114	35,33,370	31,83,350	32,74,200	31,14,550	33,18,270
Burma (Upper) .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,08,071	2,95,876	15,79,923	18,05,070	16,44,297	13,27,300	20,76,630	22,95,750	21,62,530	22,81,220	25,60,650
Central Provinces . .	4,81,672	5,63,367	6,20,993	7,26,176	6,61,325	6,83,910	8,52,862	10,06,721	8,50,139	11,74,881	9,77,617	9,91,769	10,27,202	10,36,891	9,57,110	10,92,369	11,80,165	11,56,181	12,13,461	12,59,900	12,30,850	11,31,180	10,08,630	9,96,910	7,73,320
Assam . .	...	...	65,919	61,870	81,562	1,31,326	1,61,773	1,64,335	1,63,997	1,66,051	2,48,500	2,11,115	1,80,111	1,95,656	2,12,011	2,67,312	3,03,882	3,79,198	3,25,739	3,36,129	3,82,839	4,88,500	4,35,090	4,25,030	4,36,440
Coorg . .	84,125	1,10,231	58,015	1,07,149	75,927	1,01,915	52,920	1,01,726	87,837	1,00,361	1,39,022	87,822	1,13,233	89,386	99,291	1,27,023	1,35,183	92,753	1,95,561	1,82,897	1,61,650	1,73,790	1,53,050	1,35,250	93,060
Ajmere . .	21	305	202	410	909	3,002	1,241	1,851	1,124	1,665	7,126	8,196	10,556	9,697	11,271	11,233	13,571	11,592	15,267	19,799	11,890	14,020	12,840	15,640	12,370
Forest Surveys (Imperial) .	...	...	...	21	...	...	63	33	272	...	315	36	231	202	241	40	315	220	2,104	257	520	240	8	510	400
Forest School .	...	...	...	...	...	...	...	...	...	...	...	...	73	273	415	377	449	1,237	1,181	1,788	1,969	1,990	2,790	1,310	2,850
Andamans .	6,862	1,184	5,516	5,353	1,679	1,391	5,561	2,437	27,731	18,407	70,855	24,782	12,213	23,944	31,870	1,04,062	1,66,075	1,62,195	1,58,326	2,72,338	3,09,490	1,41,750	1,15,530	1,32,120	3,02,370
Total .	11,15,286	15,97,567	12,50,730	10,54,246	12,50,129	19,76,455	12,71,206	16,13,891	18,46,869	61,39,121	64,51,305	70,85,168	50,44,204	63,01,965	67,77,906	63,19,685	91,19,610	1,01,53,311	93,82,674	99,06,351	1,10,47,530	1,16,67,960	1,05,55,120	1,09,42,870	1,19,87,190
Madras . .	5,95,183	6,13,653	5,14,401	6,77,873	5,92,573	5,50,310	6,06,782	6,26,168	7,36,339	8,06,906	9,05,442	9,53,704	11,06,916	11,98,550	12,46,911	13,74,920	15,15,005	15,57,627	17,96,403	16,94,216	15,77,210	19,47,120	18,94,030	21,10,570	23,03,330
Bombay . .	11,16,405	11,88,089	12,24,051	12,48,672	12,26,655	12,61,523	11,81,894	15,24,712	15,22,897	18,23,117	20,90,353	25,03,100	27,74,842	33,66,286	39,32,678	30,32,577	28,50,190	31,37,696	32,88,220	32,81,649	32,69,550	37,94,350	37,50,030	35,36,670	30,32,710
Total (British India) . .	58,86,879	63,99,309	59,89,182	69,80,791	61,69,360	67,83,293	60,59,890	67,61,771	71,06,556	87,74,145	94,43,100	1,05,41,912	98,85,962	1,08,69,901	1,10,57,493	1,12,27,182	1,31,81,806	1,48,19,131	1,44,61,302	1,48,85,216	1,58,91,290	1,72,09,450	1,62,99,180	1,65,90,110	1,73,23,230
Berar . .	2,56,563	2,63,256	2,60,674	2,32,782	2,53,072	2,79,236	2,83,701	3,07,560	2,66,556	2,23,511	2,92,015	3,08,218	2,97,185	3,19,851	3,25,261	4,06,457	4,07,977	4,10,541	4,87,109	5,11,185	4,31,020	4,82,800	4,73,400	4,94,340	5,17,820
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	...	...	...	931	631	651	595	...	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	...	14,376	18,616	5,03	4,752	6,089	15,962	14,081	14,053	5,653	13,897	15,724	20,609	19,630	20,730	16,900	14,930	15,450
Grand Total .	61,43,442	66,62,565	62,19,856	72,13,573	64,22,432	70,67,529	63,43,591	70,72,271	73,87,483	90,26,273	97,45,153	1,08,54,882	1,01,90,170	1,12,06,345	1,13,93,486	1,16,48,283	1,36,86,451	1,53,03,572	1,49,67,135	1,54,17,010	1,63,41,340	1,77,13,020	1,67,83,330	1,70,90,380	1,78,56,510

* The figures in this statement have been revised by the Comptroller and Auditor-General.
‡ Includes certain home receipts and undistributable and petty local items.

APPENDIX II—*continued.*

EXPENDITURE.

Provinces.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	67,150	79,216	81,219	48,239	44,004	98,690	253,955	73,816	65,291	77,635	87,253	98,266	96,305	88,215	86,290	72,625	86,199	81,311	85,513	65,783	1,07,270	80,940	81,960	80,410	78,960
Bengal	1,00,777	1,39,274	1,01,361	1,42,676	2,14,197	2,62,913	3,38,676	2,75,718	3,25,331	3,91,612	3,82,183	3,87,813	4,11,915	3,70,359	4,22,731	3,90,363	3,76,270	3,93,150	4,14,601	4,22,939	3,81,610	2,91,040	3,97,390	4,06,070	6,30,040
North-Western Provinces and Oudh	11,71,065	11,90,796	10,61,302	7,36,979	8,61,362	7,23,925	8,09,977	7,16,591	6,79,571	9,16,212	8,39,025	10,11,835	10,20,104	9,74,519	9,19,589	8,39,733	8,44,514	8,53,151	9,19,196	9,58,211	9,28,540	9,53,620	9,36,310	9,42,990	9,06,340
Punjab	8,99,369	6,11,556	6,58,933	5,56,911	5,25,659	5,20,631	5,23,551	4,89,676	4,98,368	5,16,299	5,60,750	6,51,146	5,53,979	6,75,183	7,16,510	6,77,912	5,92,885	6,45,855	6,53,011	6,19,275	6,56,279	6,36,430	7,22,420	6,78,420	7,23,240
Burma (Lower)	3,36,759	4,75,304	6,63,547	8,45,639	10,05,551	8,58,231	7,18,402	7,53,490	7,12,563	11,59,223	12,23,955	12,17,821	12,12,233	11,50,952	10,75,830	10,42,591	12,31,944	13,32,841	16,86,473	13,25,121	13,63,250	13,11,610	12,78,220	13,57,710	15,03,290
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,183	1,21,152	7,15,129	2,73,800	3,02,315	3,73,859	4,31,750	5,20,800	5,39,760	5,75,960	6,25,530
Central Provinces	2,50,578	2,85,939	2,91,149	3,73,327	2,90,295	3,22,034	3,93,758	5,22,574	4,95,512	4,97,012	4,12,247	4,36,058	4,95,821	4,45,132	4,59,293	5,52,983	6,63,697	6,95,415	7,35,551	8,03,915	8,51,400	9,32,190	9,76,000	9,52,910	9,50,990
Assam	...	...	60,267	63,397	90,520	1,01,153	1,25,028	1,52,829	1,42,725	1,65,351	1,71,823	1,99,562	1,97,699	2,11,434	2,12,287	2,26,892	2,09,905	2,57,129	2,33,852	2,67,525	2,64,070	2,68,220	2,72,040	2,86,140	2,82,010
Coorg	29,479	45,952	37,999	49,165	33,692	36,268	31,829	55,165	56,457	59,795	64,770	75,023	76,951	65,690	74,953	72,029	80,175	72,420	65,818	86,560	73,690	86,890	85,140	85,910	71,630
Ajmere	13,051	17,932	15,231	27,346	22,160	14,926	12,445	13,750	12,423	13,951	11,231	14,571	16,316	16,462	20,711	18,897	15,676	12,701	12,723	13,986	15,000	15,900	15,900	15,720	22,010
Forest Surveys (Imperial)	...	59,555	78,090	58,930	58,929	60,165	60,325	46,878	40,335	42,159	41,566	30,910	19,823	19,180	28,318	32,868	22,161	21,183	24,324	26,832	22,160	27,900	29,910	29,950	31,970
Forest School	...	...	...	...	...	...	...	...	...	...	...	...	22,563	21,729	30,831	33,129	32,961	9,616	35,191	41,317	50,400	65,530	65,980	67,950	67,380
Andamans	1,896	...	...	...	1,307	1,695	...	7,177	2,166	2,306	1,940	12,161	22,759	27,035	25,769	62,679	57,256	94,973	1,30,052	1,29,909	2,31,210	2,41,550	1,22,760	1,02,020	2,16,000
Total	23,61,723	29,05,523	30,52,583	28,63,632	31,13,279	30,04,112	30,82,919	30,78,691	30,37,824	33,35,871	34,01,740	41,67,252	41,50,563	40,79,137	41,14,515	41,31,532	50,01,311	48,79,035	47,47,954	52,09,608	53,86,020	55,23,910	56,26,470	56,42,330	62,70,060
Madras	5,48,746	4,74,920	5,95,941	5,92,033	6,35,569	5,65,624	4,96,914	5,48,527	5,19,270	6,03,418	6,15,262	7,86,933	8,96,505	9,37,972	11,53,122	11,23,212	12,20,791	11,61,237	12,46,913	13,21,254	13,20,890	13,62,770	13,86,250	14,15,610	15,21,300
Bombay	7,25,631	7,21,591	8,33,675	7,91,181	8,33,979	8,77,716	10,01,923	10,76,989	11,07,317	11,69,181	12,73,770	15,61,172	17,78,772	18,39,451	19,52,910	19,44,005	16,93,962	17,70,691	18,69,887	19,31,457	19,01,970	20,71,940	20,67,920	19,56,390	19,09,110
Total (British India)	41,38,505	41,02,037	44,85,205	42,19,312	46,22,818	44,17,782	45,83,785	47,04,207	47,21,411	56,08,471	57,25,862	65,18,157	68,25,791	68,56,570	72,20,580	72,01,749	79,19,609	78,11,513	78,64,751	84,63,319	86,21,380	90,22,720	90,80,740	90,46,330	97,73,510
Berar	83,631	86,350	91,389	91,149	91,652	1,09,963	1,07,350	1,19,506	1,28,963	1,52,985	1,55,054	1,56,779	1,52,649	1,59,242	1,71,701	1,83,765	1,70,212	1,76,549	1,68,921	1,98,368	2,29,238	2,51,250	2,51,610	2,45,510	2,41,870
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	15,013	31,801	42,940	45,472	42,066	23,955	6,461	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	15,116	17,032	11,962	16,911	13,266	15,799	17,895	17,753	15,961	17 932	29,150	30,497	55,020	53,730	40,940	41,770	29,770
Grand Total	42,22 135	41,88,387	45,76,594	43,11,311	47,17,470	45,27,750	46,91,135	48,24,713	48,69,825	57,79,488	58,92,878	67,06,860	70,25,510	70,74,551	74,55,593	74,18,356	81,29,761	80,12,518	80,03,123	86,91,182	89,05,230	93,40,700	93,73,290	93,33,510	1,00,45,150

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

STATEMENT II—*concluded.*

SURPLUS.

Provinces.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial* .	−69,379	−77,961	−80,066	−16,774	−41,514	28,672	−47,210	−56,595	−46,404	−50,228	−56,536	−65,359	−69,732	−73,537	−82,113	−73,779	−82,182	−76,552	−79,044	−59,100	−1,02,030	−78,160	−79,970	−77,720	−74,000
Bengal . .	40,075	40,092	34,571	55,578	7,901	1,63,315	77,352	1,73,776	2,25,959	2,39,122	3,11,776	3,05,521	1,59,237	2,27,033	2,30,853	2,67,126	3,00,637	3,79,562	3,13,338	3,66,623	3,63,270	3,97,570	3,93,280	4,52,640	5,20,810
North-Western Provinces and Oudh . .	7,64,119	7,41,883	3,02,056	5,27,377	2,89,309	1,75,182	2,16,778	3,23,372	2,62,651	1,49,882	1,71,376	5,69,193	5,52,215	4,86,976	6,53,976	4,16,708	6,18,258	7,51,006	7,18,681	7,73,303	7,24,000	7,46,840	7,21,910	6,58,188	5,38,480
Punjab . .	−2,57,371	1,20,983	1,75,891	3,52,920	73,035	1,63,083	−22,935	1,99,143	1,76,310	1,72,035	2,05,959	2,57,031	1,91,282	1,71,936	1,10,767	1,09,021	1,51,883	2,75,258	1,81,229	3,79,799	1,56,360	2,76,870	3,10,340	3,36,080	3,81,120
Burma (Lower)	4,99,810	5,93,347	4,11,255	9,63,251	5,45,854	7,44,851	4,18,169	4,26,760	8,04,945	10,81,590	12,75,941	12,91,451	4,58,719	8,72,987	9,22,837	11,85,203	13,77,361	18,01,872	15,91,791	15,32,903	22,20,120	21,47,710	18,95,970	20,56,810	23,14,960
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,05,886	1,75,724	7,91,799	15,32,270	13,41,982	9,53,441	16,31,850	17,71,890	16,22,820	17,05,420	19,35,150
Central Provinces . .	2,31,095	2,82,428	3,06,483	3,52,819	3,71,031	3,61,876	4,59,101	4,81,150	3,51,627	6,75,871	5,65,400	5,53,711	5,31,381	5,91,462	4,58,117	5,40,539	5,11,708	4,59,726	4,77,907	5,55,985	3,79,450	2,02,298	22,570	44,000	−1,77,670
Assam . .	...	...	5,532	−2,527	−3,962	33,473	35,751	38,505	26,272	693	67,782	11,882	−17,285	−14,333	−276	49,120	93,977	1,22,365	42,941	68,604	1,18,760	2,29,280	1,63,660	1,38,890	1,54,139
Coorg . .	51,946	61,332	20,046	67,292	42,285	64,757	17,191	46,621	31,370	40,568	73,252	12,799	36,222	23,695	25,203	54,399	56,003	20,333	69,742	96,037	1,07,550	26,990	66,910	19,410	21,370
Ajmere . .	−13,030	−17,628	−15,079	−26,936	−21,555	−11,924	−12,201	−11,385	−11,259	−9,883	−5,156	−6,376	−5,960	−6,772	−9,470	−4,601	−2,102	−1,109	2,515	5,812	−110	−1,220	−2,060	−90	−9,610
Forest Surveys (Imperial) . .	...	59,556	−78,690	−58,909	−53,929	−60,165	−60,282	−46,810	−40,053	−42,489	−41,247	−30,904	−19,589	−18,976	−28,107	−32,825	−21,819	−20,963	−22,220	−26,525	−21,640	−27,660	−29,700	−29,440	−31,570
Forest School .	...	...	...	...	...	...	...	...	...	...	...	...	−22,495	−23,966	−30,416	−32,352	−32,512	−28,169	−31,007	−42,556	−43,120	−63,540	−63,190	−63,640	−61,530
Andamans .	4,995	4,181	5,516	5,263	2,372	205	5,561	−1,710	25,574	46,101	69,018	12,001	−527	−13,091	6,161	41,382	48,780	67,220	28,274	92,129	1,29,220	1,97,240	−3,250	30,100	15,770
Total . .	12,80,553	16,92,041	11,98,141	21,90,618	12,01,850	19,72,013	11,88,259	15,35,203	18,69,015	23,03,250	26,49,565	29,17,856	17,93,611	22,25,828	25,63,358	26,88,152	41,14,765	52,75,195	46,32,729	46,96,713	56,61,510	53,79,950	50,23,650	53,01,540	57,17,160
Madras . .	46,412	1,38,733	−81,510	85,831	−12,967	−15,314	1,10,871	77,611	2,17,610	2,03,469	2,61,050	1,66,971	2,70,411	−2,60,678	93,789	2,45,708	2,91,212	3,95,894	5,13,495	2,59,962	2,46,820	5,61,410	5,67,680	6,61,960	7,69,030
Bombay . .	4,21,371	4,56,495	3,87,376	4,54,531	3,87,679	3,83,812	4,76,971	4,47,723	3,55,460	6,53,995	8,11,583	9,38,928	9,96,119	15,26,825	10,79,766	10,58,572	11,56,228	13,67,005	14,16,333	13,53,192	13,65,550	17,22,410	16,82,110	15,78,220	10,63,550
Total (British India) .	17,48,374	22,97,272	15,03,977	27,30,979	15,46,562	23,40,511	16,76,101	20,60,537	23,82,115	31,65,675	37,22,223	40,23,755	30,60,171	40,13,331	37,36,913	40,22,132	55,62,205	70,37,591	65,99,548	64,19,897	72,72,910	81,86,770	72,18,440	75,41,720	75,49,720
Berar . .	1,72,932	1,76,906	1,69,285	1,41,222	1,58,120	1,69,268	1,81,351	1,96,994	1,37,582	89,525	1,36,990	1,51,139	1,44,529	1,96,009	1,51,552	2,22,682	2,37,765	2,63,992	3,18,183	3,12,819	2,01,760	2,23,569	2,21,760	2,38,680	2,75,950
Forest Surveys (Berar) . .	...	...	...	...	...	...	...	...	...	...	...	−15,613	−33,870	−42,909	−44,821	−41,502	−23,955	−6,464	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	...	−2,040	934	+6,923	−12,159	−7,177	−837	+3,755	−3,690	−10,226	−4,085	−13,725	−9,888	+36,560	−43,000	−24,610	−26,840	−14,310
Grand Total .	19,21,306	24,74,178	16,73,262	28,72,201	17,04,682	25,09,779	16,57,451	22,57,531	25,87,657	32,57,134	38,52,275	41,47,992	31,63,060	41,30,794	39,42,691	41,99,922	57,68,699	72,98,054	69,04,040	67,22,828	75,88,110	83,72,320	75,15,490	77,66,770	78,11,360

G. I. C. P. O.—No. 378 R. & A.—21-11-99.—250.—F. M. M.

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

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REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1897-98.

BY

B. RIBBENTROP, C.I.E.,
INSPECTOR GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

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CHAPTER I.

EXTENSION AND ALTERATION OF THE FOREST AREA.

I.—Alteration in Area.

The alterations in area of Reserved forests during the year are shown in the following table:—

Province.	Area of Reserved Forests, in square miles.				Remarks.
	In 1896-97.	Added in 1897-98.	Excluded in 1897-98.	At close of 1897-98.	
Bengal	5,876	4	(*a*)	5,880	(*a*) 160 acres.
North-Western Provinces and Oudh.	8,822	41	12	(*b*)8,851	(*b*) Includes 153 square miles of *leased* forests.
Punjab	1,681	607	5	(*c*)2,283	(*c*) Includes 419¼ square miles of *leased* forests.
Burma (Lower)	7,250	157	34	(*d*)7,373	(*d*) Includes 619 square miles of *taungya* areas.
Burma (Upper)	6,808	624	117	(*e*)7,333	(*e*) Includes 230 square miles of *taungya* areas.
Central Provinces	19,258	127	179	19,206	
Assam	3,681	1	92	3,590	
Coorg	238	...	...	238	
Ajmer	139	...	...	139	
Baluchistan	170	...	...	170	
Andamans	85	35	...	120	
Total	49,008	1,614	439	50,183	
Berar	4,179	57	61	4,175	
Total Bengal Presidency	53,187	1,671	500	54,358	
Madras	13,138	681	44	13,775	
Bombay	(*f*)12,986	420	125	(*f*)13,281	(*f*) Includes the area of the *leased* forests in the Dangs, estimated at 679 square miles.
GRAND TOTAL	79,311	2,772	669	81,414	

The area of new Reserves added during the year amounted to 2,772 square miles, while areas disforested or rectified by more correct computation caused a decrease of 669 square miles. The total increase was thus 2,103 square miles, bringing the total area at the close of the year to 81,414 square miles, as compared with 79,311 square miles at the close of 1896-97. The main additions took place in the Punjab, Upper Burma, Madras, and Bombay. Further large areas were under examination in Burma, where projects for the reservation of 4,300 square miles were pending at the close of the year.

The following statement gives the total area of all forest lands under the control of the Forest Department at the close of the year :—

Province.		Forest area, in square miles.				Proportion of Forests to whole area of Province.	Remarks.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed St.tc.	Total.		
						Per cent.	
Bengal . . .	153,148	5,880	3,460	4,034	13,374	8·73	(*a*) Includes 153 square miles of *leased* forests.
North-Western Provinces and Oudh.	106,149	(*a*)3,851	94	43	3,988	3·75	(*b*) Includes 419½ square miles of *leased* forests, and excludes 122 square miles of Military Reserves and 3 square miles of Civil Reserves.
Punjab . . .	110,786	(*b*)2,283	(*c*)3,011	2,139	7,433	6·71	
Burma (Lower) .	83,557	(*d*)7,373	(*f*)	...	7,373	8·82	
Burma (Upper) .	77,210	(*e*)7,333	(*f*)	...	7,333	9·49	(*c*) Exclusive of 131 square miles under the Civil Authorities.
Central Provinces .	86,451	19,206	...	292	19,498	22·55	(*d*) Includes 619 square miles of *taungya* areas.
Assam . . .	41,380	3,590	...	15,683	19,273	46·57	(*e*) Includes 230 square miles of *taungya* areas.
Coorg . . .	1,582	238	649	...	887	56·06	(*f*) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Ajmer . . .	2,646	139	...	(*g*)10	149	5·63	
Baluchistan . .	...	170	...	...	170	...	
Andamans . .	2,000	120	...	1,833	1,953	97·65	
Total .	664,909	50,183	7,214	24,034	81,431	(*h*)12·22	(*g*) Village lands managed by the Forest Department, but not yet brought under the Ajmere Forest Regulation.
Berar . . .	17,207	4,475	...	...	4,475	23·56	
Total Bengal Presidency.	682,616	54,358	7,214	24,034	85,606	(*h*)12·51	(*h*) Baluchistan left out of account.
Madras . . .	141,259	13,775	...	5,478	19,253	13·62	
Bombay . . .	123,048	(*i*)13,281	1,631	...	14,912	12·11	(*i*) Includes the area of the *leased* forests in the Dangs, estimated at 679 square miles.
GRAND TOTAL .	946,923	81,414	8,845	29,512	119,771	(*h*)12·63	

At the close of 1896-97, the total area amounted to 113,917 square miles, and there has thus been an increase of 5,854 square miles. This has occurred chiefly in Assam, where a rectification of area has led to an increase in the estimated area of Unclassed forests of 4,439 square miles.

The details of the changes which took place in the various Provinces are given below.

Bengal.—Four square miles were added to the area of Reserved forests, by the reservation of the Tumchar, part of an island off the coast of Noakhali. To the Protected forests, the area of which is estimated at 3,460 square miles, 96 square miles were added by the demarcation of waste land in the Palamau and Manbhum districts, whilst 14 square miles of the Sundarbans Protected forests were given up for cultivation. The area of Unclassed forests remained unchanged.

North-Western Provinces and Oudh.—The Local Government remarks:—

"The areas of the different classes of forests at the commencement and close of the year were as follows:—

Circle.	Reserved Forests.		Protected Forests.		District Protected Forests.		Unclassed Forests.	
	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.	1st July 1897.	30th June 1898.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Central	1,703	1,737	94	94	9,223	9,177	30	30
Oudh	1,244	1,244	...	...	...	...	...	...
Sahsol	*875	†870	...	...	...	...	13	13
Total .	3,822	3,851	94	94	9,223	9,177	43	43

* Inclusive of 158 square miles leased forests.
† " 163 " "

In the Central Circle the increase is due mainly to the formation of new reserves in the Naini Tal Division from the district Protected forests of Almora, the area of which shows a corresponding decrease. In the School Circle the preparation of a working-plan for the leased forests enabled the area to be more accurately determined."

Punjab.—The principal changes during the year were—

In Kangra the area of undemarcated Protected forests was diminished by 65,744 acres owing to the transfer of a large area to Unclassed forests and to rectification of area figures.

In Kulu a more correct computation, based on the results of the survey, has increased the area of the forests by some 650 square miles.

In Lahore 56 square miles were given up for cultivation from the Unclassed forests.

In Shahpur 605 square miles were added to Reserved forests, the area of Protected and Unclassed forests being correspondingly reduced.

Burma.—Good progress was made in the reservation of forest areas, 157 square miles being added to Reserved forests in Lower Burma and 642 square miles in Upper Burma. Recomputation of area led to a decrease of 99 square miles in the Western Circle. The following statement shows the changes of the year in Lower and Upper Burma:—

Province.	Class of Forests.	Area, in square miles.			
		At commencement of the year.	Added during the year.	Excluded during the year.	At close of the year.
Lower Burma . .	Reserves . .	6,631	157	34	6,754
	Taungya areas .	619	...	...	619
	(a) Protected forests	...	...	...	...
	Total .	7,250	157	34	7,373
Upper Burma . .	Reserves . .	6,581	628	106	7,103
	Taungya areas .	227	14	11	230
	(a) Protected forests .	...	...	...	...
	Total .	6,808	642	117	7,333
Upper Burma and Lower Burma combined.	Reserves . .	13,212	785	140	13,857
	Taungya areas .	846	14	11	849
	GRAND TOTAL, BURMA.	14,058	799	151	14,706

(a) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.

Central Provinces.—The Chief Commissioner thus reviews the results of the year :—

"The following statement contrasts the areas and classification of the forests as they stood at the beginning and end of the year respectively :—

	AREA, IN SQUARE MILES.					
	Southern Circle.		Northern Circle.		Total.	
	June 1897.	June 1898.	June 1897.	June 1898.	June 1897.	June 1898.
A	7,311	7,384	5,293	5,316	12,604	12,700
B-1	1,132	1,159	1,856	1,704	2,988	2,863
B-2	1,142	1,127	2,523	2,516	3,665	3,643
Unclassed	337	275	16	17	353	292
Total	9,922	9,945	9,688	9,553	19,610	19,498

The increase in area of 23 square miles in the Southern Circle is due to the correction of areas by forest survey (89 square miles), and an addition of 7 square miles of Unclassed forest, against which must be set off the excision of 69 square miles for *ryotwari* cultivation, and the disforestment of 4 square miles transferred to *malguzars* to rectify the boundaries of the forest.

In the Northern Circle the decrease of 135 square miles is due to disforestment of areas required for *ryotwari* settlement, which had been selected in past years as suitable for cultivation."

Assam.—The area of Reserved forests decreased by 91 square miles, and at the close of the year stood at 3,590 square miles. Further attempts at calculating the area of Unclassed State forests resulted in an increase of 4,439 square miles, bringing the estimated area of these forests to 15,683 square miles. This is liable to change and, moreover, does not include the area of forests in the Naga hills, for which no data are available.

Coorg.—The area of Reserved forests was unchanged ; 608 acres of *paisaris* Protected forest were excluded, chiefly for cultivation.

Ajmer.—The Commissioner remarks—

"The area of the Reserved State forests controlled by the Forest Department remained unchanged, *viz.*, 139 square miles. The slight changes that occurred, owing to the rectification of the boundary line and demarcation of the cultivated plots situated within the forest tracts, cannot be shown until the survey of these forests, started during the year, is completed and areas are computed.

The areas of Village Reserves and of Protected forests were 6,803 and 100 acres respectively on the 30th June 1898, being the same as at the end of the preceding year."

Baluchistan.—There was no change in the area under the Department, which remained as before at 170 square miles.

Andamans.—The area of Reserved forests was increased by 35 square miles ; 15 square miles at Shoal Bay and 19 square miles at Port Meadows, whilst a small area was reserved at Hope Town, bringing the area of Reserved forests to 120 square miles.

Berar.—There were numerous changes and transfers from one class of State forest to another, with the net result of a decrease in area of 4 square miles ; 706 acres in the Amraoti Division and 2,391 acres in the Wun Division were disforested for cultivation purposes, and 2,106 acres to form an "*Izara*" under the orders of the Government of India. It is reported that there is believed to be a considerable amount of land in the Wun Districts which has been included in Reserved forest, but which is much more suitable for cultivation.

Madras.—The Madras Government in their Resolution on the Report of Forest Administration remarks—

"The following abstract compares the areas of Reserved forests and Reserved lands at the beginning and at the end of the year under review :—

	Area on 1st July 1897.	Area added during 1897-98.	Area excluded during 1897-98.	Net increase or decrease.	Area on 30th June 1898.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Reserved forest	13,138	681	44	+637	13,275
Do. lands	5,769	524	815	—291	5,478
Total	18,907	1,205	859	+346	19,253

It will be seen that the net result is an addition of 637 square miles of Reserved forests and a deduction of 291 square miles of Reserved lands from the area under the control of the Department. The corresponding figures for the preceding year were an addition of 750 square miles of Reserved forests and a deduction of 921 square miles of Reserved lands. The percentage on the 30th June 1898 of the Reserved area to the total unoccupied area, excluding zamindari and whole inam villages and minor inams in Government villages, varied from 74·53 per cent. in the Nilgiris to 2·54 per cent. in Tanjore and averaged 37·21 per cent. for the whole Presidency."

Bombay.—The following statement, extracted from the Bombay Government's Resolution in the Forest Report of the year, clearly shows the changes of the year :—

Circle.	Area on 1st July 1897.			Added.		Excluded.		Area on 30th June 1898.		
	Reserved.	Protected.	Total Forest Area.	Reserved.	Protected.	Reserved.	Protected	Reserved.	Protected.	Total Forest Area.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Northern Circle .	*1,191	434	*1,625	106	...	13	96	*1,284	338	*1,623
Central Circle .	6,382	12	6,364	1	...	103	...	6,240	12	6,261
Southern Circle .	3,700	1,578	5,278	311	1	2	299	4,009	1,279	5,289
Sindh Circle .	†1,064	...	†1,061	2	...	7	...	1,058	...	1,059
Total .	12,336	2,025	14,333	421	1	126	394	12,602	1,631	14,233

* Excluding the area of leased forests in the Dangs, which is given as 678½ square miles.
† Exclusive of an area of 3 square miles of Unclassed forest.

In the Northern Circle, 1,187 acres were excluded owing to settlement operations in Thana. In the Central Circle, rectification of areas resulted in a decrease of 103 square miles. In the Southern Circle, 300 square miles were transferred from Protected to Reserved forests in Kanara, and in Sindh there was a decrease of 9 square miles, which was mostly disforested for cultivation.

The net result for the Presidency is a decrease in the area under forest of 99 square miles.

II.—Forest Settlements.

Notwithstanding the unfavourable conditions of the year, considerable progress was made in forest settlement operations, resulting in the addition to Reserved forests of 2,103 square miles, as against 2,829 square miles in the previous year. In Bengal, settlement work in the Unclassed forests of Chittagong was well advanced, and it is expected that considerable areas there will shortly be formed into Reserves. In the Punjab, the completion of the settlement of the rakhs of the Khusháb Tahsil of the Shahpur District resulted in an addition of 605 square miles to Reserved forests. Much good work was done in Burma, where 798 square miles of new Reserves were formed, and in addition proposals dealing with no less than 4,300 square miles were pending at the close of the year. In Lower Burma, reservation is reported to be nearly complete, but in Upper Burma there are still large and valuable tracts waiting to be dealt with. In Madras, 652 square miles of new reserves were notified, and settlement operations were in progress over an area of 3,827 square miles. The balance of reserved lands in Madras which have still to be brought under settlement stood at 1,651 square miles at the close of the year, and it is probable that settlement operations will not be completed for another 8 or 9 years. In Bombay, 420 square miles of new Reserves were formed and 1,625 square miles were undergoing settlement at the close of the year.

The total area undergoing settlement in all provinces at the close of the year stood at 9,175 square miles; the area still to be taken in hand is estimated at 34,400 square miles, a figure which does not, however, include considerable areas as yet unexamined in Burma.

The following table shows the changes in area which took place during the year in the various provinces :—

Province.	Alterations in area, in square miles, during 1897-98.								Remarks.
	Reserved Forests.		Protected Forests.		Unclassed State Forests.		Total.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal	4	(a)...	95	13	...	...	99	13	(a) 160 acres excluded. (b) 96 acres obtained by rectification of previous area figures. (c) 9 square miles and 301 acres due to rectification of previous area figures. (d) Obtained by correction of previous area figures. (e) 150 square miles due to correction of previous area figures. (f) 98 square miles obtained by rectification of previous area figures. (g) 3 square miles due to correction of previous area figures. (h) 126 square miles obtained by survey re-measurement and rectification of previous area figures. (i) 37 square miles lost by survey re-measurement and rectification of previous area figures. (j) One square mile obtained by correction of previous area figures. (k) 26 square miles due to correction of previous area figures. (l) 99 square miles due to correction of previous area figures. (m) Obtained by rectification of previous area figures. (n) 87 square miles due to rectification of previous area figures. (o) 4,315 square miles obtained by rectification of previous area figures. (p) 3 acres. (q) 29 square miles obtained by rectification of previous area figures. (r) 31 square miles due to rectification of previous area figures. (s) 43 square miles obtained by rectification of previous area figures. (t) 9 square miles due to rectification of previous area figures. (u) 39 acres obtained by rectification of previous area figures. (v) 106 acres due to rectification of previous area figures. (w) 20 acres due to rectification of previous area figures.
North-Western Provinces and Oudh.	(b)41	(c)12	...	...	...	...	41	12	
Punjab	607	5	(d)777	(e)643	(f)167	(g)286	1,551	934	
Burma (Lower)	(j)157	(k)34	...	...	...	...	157	34	
Burma (Upper)	642	(l)117	...	...	...	...	642	117	
Central Provinces	(h)127	(i)179	...	...	9	69	136	248	
Assam	(m)1	(n)92	...	...	(o)4,792	353	4,793	445	
Coorg	...	...	...	1	...	...	...	1	
Ajmer	...	...	...	...	...	...	...	...	
Baluchistan	...	...	...	...	...	(p)	...	...	
Andamans	35	...	...	...	...	35	35	35	
Net Total Increase or Decrease.	1,175	...	215	...	4,225	...	5,615	...	
Berar	57	61	...	...	...	...	57	61	
Net Total Increase or Decrease, Bengal Presidency.	1,171	...	215	...	4,225	...	5,611	...	
Madras	(q)681	(r)44	...	...	(s)524	(t)815	1,205	859	
Bombay	(u)420	(v)126	1	(w)399	...	...	421	524	
Grand net Total Increase or Decrease.	2,103	...	...	183	3,934	...	5,854	...	

The details of work done in the various provinces is as follows :—

Bengal.—Good progress was made in settlement work, and the Paglajhora forest was practically finished by the close of the year. In Chittagong the settlement of large areas is in progress. The work was so far advanced that it was intended to demarcate 342 square miles of proposed reserves during the following year. The practice of "*jhuming*" continues to cause much destruction in the Chittagong Unclassed forests, and the Government of India point out the necessity of selecting and reserving all areas which it is intended to manage as permanent forest estates with as little delay as possible.

North-Western Provinces and Oudh.—The Government of India remark :—

"The most important settlement work pending at the close of the year was in the Central Circle, where an area of 225 square miles is shown as undergoing settlement. Of this, however, it appears that the settlement of 103 square miles has been completed, and that the final notification reserving this area has been issued since the close of the year. The settlement of the 5 Thair blocks has been from various causes greatly delayed, and the Government of India trust that steps will be taken to shortly bring this work to a completion. The progress made in the settlement of the sub-montane sál-bearing areas is noticed with satisfaction. In Oudh an area of 44 square miles, being the land proposed to be taken in exchange from the Khairagarh estate in Kheri, remains unsettled. This has been long outstanding, and under the orders issued by His Honour the Lieutenant-Governor will doubtless be now shortly concluded. It would seem that there will be but little more forest settlement work to be done in the North-Western Provinces and Oudh, with the exception of such portions of the Garhwal and Almora district forests which it may seem desirable from time to time to set aside as permanent timber-producing estates. At the present time there is but little demand on these forests, but in case it is found practicable to institute impregnation works it is very possible that a market may be found for the less valuable pines and spruces which are present in considerable quantity in many of the forests. In this case the necessity for reserving the more valuable portions will have to be considered; and under these circumstances the Government of India observe with satisfaction that it is intended to demarcate the more important timber-producing areas."

Punjab.—The forest settlement of the rakhs in the Khushab Tahsil of the Shahpur District was completed and an area of 605 square miles was added to Reserved forests. The only settlement work now pending is that of the Shahpur-Kandi tract in the Gurdaspur District. Forty-nine thousand acres of Unclassed forest was given up for cultivation.

Burma.—Much good work was done in settling the forests and forming them into reserves. In addition to the new reserves formed (157 square miles in Lower Burma and 642 square miles in Upper Burma) enquiries were completed by Forest Settlement Officers over 793 square miles, and projects for reservation of 4,300 square miles were pending at the close of the year. In Lower Burma reservation is reported to be nearly complete, but in Upper Burma large tracts remain to be examined and dealt with. Much useful work in this direction was accomplished during the year.

Central Provinces.—In the Northern Circle, disforestment of areas required for ryotwari settlement caused a decrease in the area of B. I. and B. II. forests of 135 square miles. In the Southern Circle the work of examination and classification of the forests into areas for permanent retention as forests, or as suitable for cultivation, is nearly completed, except in Sironcha. In the Northern Circle, only in Mandla has any progress been made in this direction.

Assam.—No areas were finally settled during the year. The settlement of the Langting Mahur and the Barail proposed reserves (area 200 square miles) in the Cachar District was still under consideration. In Goalpara a proposal for the reservation of 1,131 acres in the vicinity of the Bengtol reserve was before Government, and in Kamrup proposals to reserve four small patches of good sál forests are being considered. In Darrang, the forests west of the Belsiri river were examined, and proposals for the reservation of about 20 square miles were submitted to Government as an addition to the Charduar reserve. In the Garo Hills proposals to reserve 40,400 acres are under preparation. These areas are stated to be the most valuable forests in the division outside existing reserves.

Coorg.—The area of Reserved forests underwent no change. No practical progress was made in regard to the settlement of the Protected forests, but it has since been arranged to depute a special officer for the settlement of the Ghát forests, and to disforest most of the other Protected forests, forming the more valuable portions of them into Reserved forests.

Ajmer.—The revised record of rights was under consideration, and has since been generally approved of by the Government of India. The villagers exhibited a dislike to allow their forests to be formed into village reserves, and a more simple set of rules was under preparation, which will, it is hoped, remove any cause of discontent. There were no changes of area.

Baluchistan.—No fresh areas were formed into State forests during the year, but various proposals for reserving areas were under consideration. It is proposed to reserve certain sections of the chilgoza forest in Zhob. It was decided that an area of 3,149 acres in Mazar

and Central Zarghun, and 22,000 acres, being the Gadibar forest at Anambar should be constituted Reserved forest. Further areas in Batserji, Khumak, and Ghairgi await examination.

Andamans.—The following areas were notified reserves :—

Hope Town forest area	0·65	square miles.
Shoal Bay	15·20	,,
Port Meadows	19·00	,,
	34·85	,,

This brings the area of Reserved forests to 120 square miles. A further area of 36·58 square miles was under settlement and has been notified Reserved forest since the close of the year.

Berar.—There were no forest settlements in progress during the year.

Madras.—The Madras Government thus records the work done during the year :—

"The work of forest settlement did not make quite as much progress as was to be desired. One hundred and thirty-two blocks with an extent of 652 square miles were finally constituted Reserved forests during the year, as against of 136 blocks of 845 square miles in the previous year ; and there remained at the end of the year, 477 blocks, comprising an area of 3,827 square miles finally to be constituted Reserved forests. The following statement exhibits the areas finally constituted as Reserved forest during the past five years :—

	1894-95.		1895-96.		1896-97.		1897-98.	
	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.	Number of blocks.	Area, in square miles.
Finally constituted Reserved forests.	225	680	185	858	136	845	132	652"

The results achieved were thus somewhat less than in previous years, but a satisfactory feature of the year's work was the completion of several long-pending blocks in Ganjam, Godavari, Cuddapah, Nellore, and South Canara. At the close of the year an area of 3,827 square miles was undergoing settlement, and the balance of Reserved lands which remains to be brought under settlement stood at 1,651 square miles.

Bombay.—Forest settlement work resulted in an increase to the area of Reserved forests of 420 square miles.

In the Northern Circle, the settlement reports of the Dahanu and Murbad Talukas were sanctioned. In the Central Circle, various areas were acquired on payment of compensation at rates which the Bombay Government consider to be too high. In the Southern Circle, settlement proposals for the talukas of Honávar and Sirsi, and the petha of Bhatkal in Kanara were sanctioned, and one taluka only remained to be dealt with. In Kolaba proposals for the Madrai villages were awaited ; elsewhere the work is almost complete. In Sindh there is but little progress to record, and 24,665 acres remained for settlement. The total area undergoing settlement at the close of the year amounted to 1,625 square miles, and the area still to be taken in hand is estimated at 590 square miles.

III.—Demarcation.

In Madras and Bombay, where important forest settlements are still in progress, excellent progress was made during the year both in laying down new boundaries and in re-clearing old boundary lines. In Madras 1,964 miles, and in Bombay 1,261 miles, of new boundaries were laid down in a permanent manner. Compared with these figures, work in other provinces has been insignificant, but good work has been done in putting down new boundaries in Burma and the Central Provinces. Elsewhere work has consisted in keeping existing boundaries in proper repair. The chief work remaining in the provinces of the Bengal Presidency is the demarcation of the Kangra forests of the Punjab.

The number of miles of boundary artificially demarcated at the close of the year stood at 93,067 miles, and the total expenditure during the year amounted to R98,367.

The following table shows the detail of the boundaries in the various provinces at th close of the year 1897-98 :—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks	Total length of boundaries at the close of the year.	Expenditure on Demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles	Miles	Miles	Miles.	R	R
Bengal	.....	1	2,041	232	2,274	20	1,717	4,011	...	8,612
North Western Provinces and Oudh	Central Circle	33	435	1,962	2,430	35	647	3,112	1,391	1 608
	Oudh „	27	188	981	1,196	4	332	1,532	72	2,558
	School „	24	249	390	663	108	359	1,130	401	1,012
	Total	84	872	3,333	4,289	147	1,338	5,774	1,864	5,178
Punjab	.....	108	2,031	7,937	10,076	4,772	1,196	16,044	1,124	4,385
Lower Burma	Pegu Circle	92	537	1,143	1,772	37	967	2,776	1,057	760
	Tenasserim Circle	16	531	1,776	2,323	10	641	2,974	134	1,209
	Total	108	1,068	2,919	4,095	47	1.608	5,750	1,191	1,969
Upper Burma	Eastern Circle	404	528	1,036	1,966	104	75	2,145	3,711	2,502
	Western „	175	47	1,180	1,402	671	1,355	3,428	1,388	238
	Total	579	573	2,216	3,368	775	1,430	5,573	5,099	2,740
Central Provinces.	Northern Circle	189	7,374	3,207	10,770	819	1,333	12,922	1,116	1,093
	Southern „	154	10,293	1,165	11,612	136	1,123	12,871	318	4,120
	Total	343	17.667	4,372	22,382	955	2,456	25,793	1,434	5,213
Assam	.....	3	1,124	...	1,127	...	1,349	2,476	294	2,746
Coorg	.....	...	23	240	263	...	11	274	1,205	450
Ajmer	.....	53	92	91	236	...	156	392	384	119
Andamans	.....	10	13	21	44	16	94	154	25	10
Baluchistan	.....	...	45	227	272	...	49	321	...	...
Berar	.....	12½	957½	303½	1,273½	74	180	1,527½	191	833
Total Bengal Presidency	.....	1,301½	26,506½	21,891½	49,699⅓	6,806	11.584	68,089⅓	12.811	32.255
Madras Presidency	Northern Circle	595	1,106	4,039	5,740	1,109	662	7,511	8,986	2,479
	Central „	1,021	1,001	9,659	11,681	1,273	191	13,145	10,181	3,549
	Southern „	348	697	4,926	5,971	412	741	7,124	2,864	4,581
	Total	1.964	2,804	18,624	23,392	2,794	1,594	27,780	22,031	10,609
Bombay Presidency	Northern Circle	520	765½	1,442⅔	2,728½	1,834¼	328¼	4,890¾	6,778	589
	Central „	679	1,452	13,162	15,293	6,618	860	22,801	6,262	3,848
	Southern „	24	...	11	35	14,466	636	15,137	2,335	827
	Sindh „	38	1,476	406	1,920	35	551	2,506	12	10
	Total	1,261	3,693½	15,021⅔	19,976⅔	22,983¼	2,375¼	45,334¾	15,387	5,274
Grand Total	.....	4,526⅓	33,904	55,537¼	93,067¾	32.583¾	15,553¼	141,204¼	50,229	48,138

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of subdivisions, such as blocks, compartments and coupes.

Bengal.—Owing to various small changes, the length of boundaries was increased by 22 miles and now stands at 4,011 miles. Only one mile of new demarcation was found necessary, but a large amount of work was done in the Protected forests of the Singhbhum Division in rendering permanent and clear boundaries which had been insufficiently laid down at time of settlement. A total expenditure of R8,612 was incurred against R8,573 in the previous year.

North-Western Provinces and Oudh.—In the Central Circle, boundaries were kept in order at a cost of R1,608. The new reserves of Binsar and Siahi Devi were demarcated, and the demarcation of village lands inside reserved forests was completed in the Garhwal Division. In Oudh the re-demarcation of the forests by monoliths was pushed on, and 934 miles were completed. This important work will now shortly be finished and will give the Oudh Circle probably the best system of demarcation in India. In the School Circle 24 miles of new boundaries were laid down, and a total expenditure of R3,413 was incurred chiefly on repairs. There remains 108 miles in the Jaunsar Division which require demarcation.

Punjab.—One hundred and eight miles of new boundaries were laid down, and existing boundaries were kept in order at a cost of R5,509. In Chamba good work was done in the reconstruction and numbering of pillars, but there still remains a great deal of work to be done in Kangra, where 3,834 miles remain to be demarcated.

Burma.—The Local Government in their review of Forest administration remark :—

"The demarcation of 108 miles of reserve boundaries was carried out in Lower Burma at a cost of R1,191, and an outlay of R1,960 was incurred on repairs to and renewal of boundary marks. In Upper Burma 579 miles of boundary were demarcated at a cost of R5,099, and R2,749 were spent on repairs to existing marks. The total length of boundary still remaining to be demarcated is 822 miles, of which 775 are in Upper and 47 in Lower Burma. The work of demarcation in the Western Circle had to be postponed, as the time of all officers was fully occupied in carrying out the valuation surveys of the forests. Special efforts should now be made to overtake the arrears which have accumulated."

Central Provinces.—In the Southern Circle the length of existing boundaries was reduced by 34 miles, owing to excisions in Chamba and Chhindwara. One hundred and fifty-four miles of new boundaries were demarcated, and 10,293 miles of existing boundaries were kept in repair at a total expenditure of R4,438. In the Northern Circle 189 miles of new boundaries were laid down, and 7,374 miles were repaired at a total cost of R2,209. There still remain 955 miles to be demarcated, chiefly in the Northern Circle.

Assam.—The demarcation of all reserved forests is complete, and the number of miles artificially demarcated stands at 1,127, of which 3 miles were laid down during the year. A total expenditure of R3,040 was incurred.

Coorg.—With the exception of the ghât forests, demarcation of the reserved forests in Coorg may be said to be complete. A good deal of useful work was done in clearing lines and repairing pillars, and a commencement was made towards the effectual demarcation of the western boundary line of the ghât forests adjoining the Malabar District and private forests. A total expenditure of R1,655 was incurred.

Ajmer.—Much good work was done and 53 miles of new boundaries were laid down; 1,205 new pillars were erected at a cost of R384. Form No. 40 shows that the demarcation of the forests is completed, but from the annual report it would seem that there remains a good deal of work, particularly in the demarcation of village lands inside State forests.

Andamans.—Boundary lines were cleared over 12½ miles. The demarcation of the Dhani Khari reserve and of the Hope Town reserve was completed, 10 miles in all. Sixteen miles of boundary remain undemarcated.

Baluchistan.—Existing boundary lines and pillars were kept in repair. No new work was found necessary. Demarcation of the State forests is complete.

Berar.—The only fresh work of the year has been the demarcation of forest land allotted for cultivation in the Bairagarh reserve. The boundaries of State forests A. and B. are in good order. Seventy-four miles of Class B. forests remain to be demarcated. The boundaries of Class C. forests are not in good order. A total expenditure of R1,624 was incurred.

Madras.—Great progress has been made in laying down the boundaries of settled forests, particularly in the Central Circle, where no less than 1,021 miles of new boundaries have been permanently laid down. Important work has also been done in the Northern and Southern Circles. The cost of the permanent demarcation amounted to R22,031, or a little more than R11 a mile. Besides the permanent new demarcation work, 2,804 miles of old lines were re-cleared at a cost of R3-12 a mile. The total expenditure on demarcation work during the year amounted to R32,640.

Bombay.—The work of the year is thus fully reviewed by the Bombay Government:—

"The following statement compares the length of boundary demarcated and the cost with the figures of previous years:—

Circle.	1896-97.		1897-98.		Average for five years ending 1895-96.		Remarks.
	Length in miles of boundary lines cleared.	Cost.	Length in miles of boundary lines cleared.	Cost.	Length in miles of boundary lines cleared.	Cost.	
	Miles.	R	Miles.	R	Miles.	R	
Northern Circle . .	260	4,814	520	6,778	246	3,019	
Central Circle . .	2,746	16,917	679	6,262	1,073	8,759	
Southern Circle . .	20	3,888	23	2,335	108	2,750	
Sindh Circle . .	81	240	38	12	*176	*929	*1895-96 only.
Total .	3,107	25,859	1,260	15,387	1,603	15,457	

In the Northern Circle demarcation work was carried on with greater rapidity and economy than in the previous year; 256 miles were marked with cairns, and 264 miles cleared, against 224 and 36 miles, respectively, and the rate per mile fell from R16 and R33 to R14-9-0 and R13-4-0. In South Thana alone the cost increased from R19 to R31, and the necessity for erecting, in a locality where stones are alleged to be scarce and the labour bill high, cairns 'three times the volume' of those found sufficient elsewhere, should be carefully examined by the Conservator. The results of the experiments in the production of a cheaper form of boundary mark undertaken in North Thana should be reported for the information of Government.

In the Central Circle the abnormal outturn in 1896-97 was due to the employment of famine labour, and the reduction in 1897-98 necessarily followed upon the cessation of relief.

In the Southern Circle the demarcation of all the external boundaries of forest by the Revenue Survey was completed, and the Forest Department began to supplement this work by the erection of their special marks. The whole area is therefore entered in Form No. 48 as still requiring demarcation. It is observed that in the districts of Belgaum and Bijapur, while 25,490 stone pillars have been prepared in two years, only 1,811 have been placed in position. It is hoped that progress has been made during the current year in the erection of the pillars. It is satisfactory that in North Kanara compartment lines once cleared are kept free of re-growth by the forest guards without additional expense to Government, and the same system should be enforced in the Western Division.

In Sindh progress was slow, 20¾ miles only, according to paragraph 34(*a*) of the report, being demarcated; out of 12⅞,000 acres notified as forests during the last six years, approximately one-third remained to be dealt with. The demarcation of the lands afforested previous to 1892 is understood to be complete."

IV.—Surveys.

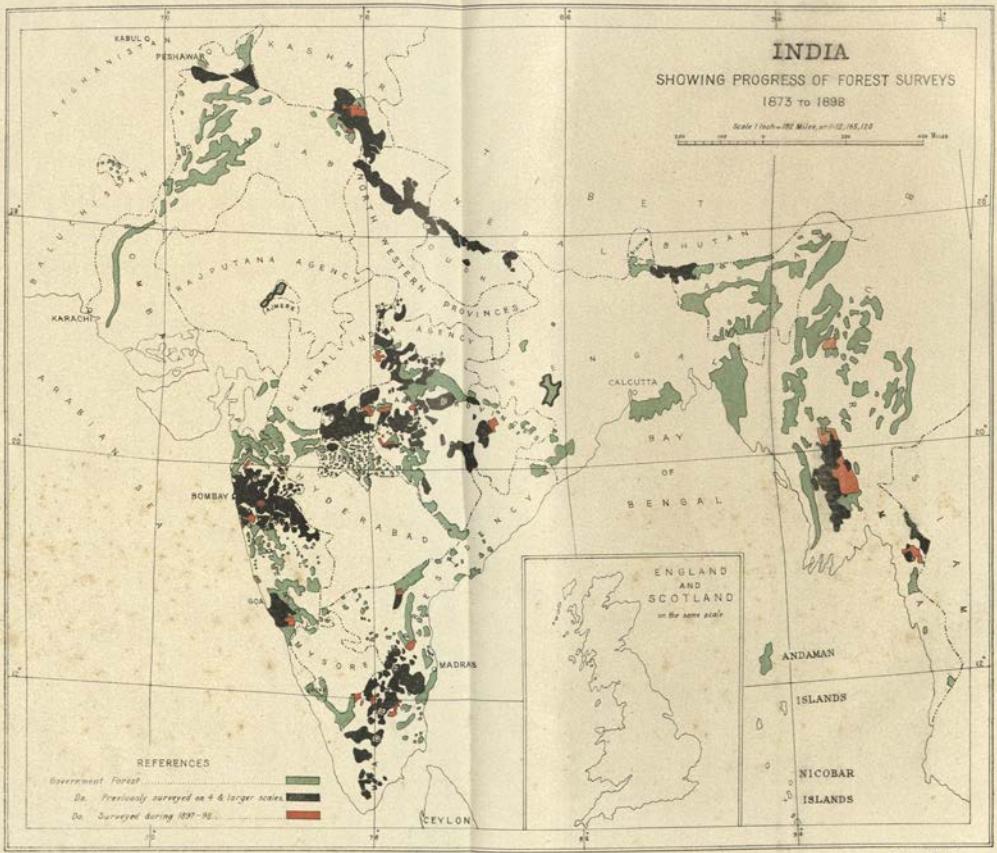
Forest survey operations during 1897-98 were conducted in Madras, Bombay, and Burma by four parties of the Survey of India Department, and small areas in the Himalayas were also surveyed by No. 18 Party. The Forest Survey Branch was employed in the Central Provinces, the Punjab, and Burma, and a small detachment was employed in Oudh. Since the close of the year No. 20 Party, which was working in Burma, has been brought under the administrative charge of the Superintendent of Forest Surveys. The total forest area topographically surveyed, on various scales, by the above agency, amounted to 4,334 square miles, of which 1,937 were surveyed by the Forest Survey Branch, and 2,397 square miles were done by the Survey of India Department. In addition to the above, the Forest Survey Branch completed an area of 200 square miles on the 1-inch scale for topographical purposes in the Chamba State. The outturn by the Forest Survey Branch, of areas surveyed for forest purposes, is 174 square miles in excess of the previous year, whilst the outturn of the Parties of the Survey of India Department is less by 863 square miles. The decrease in area surveyed by the latter agency is attributed to the conversion of No. 14 Party, hitherto employed on forest surveys, into a topographical party.

The following tabular statement shows the details and areas on different scales, as well as the cost-rates, of the several branches of the survey operations :—

AREAS SURVEYED AND COST RATES PER SQUARE MILE.

Presidency or Province.	Triangulation.				Traversing.				Detail Survey and preparation of maps on scales of—														Total Topographical Surveys.		Total Expenditure, 1897-98.	
									1″=1 mile.				2″=1 mile.				4″=1 mile.				8″=1 mile.				16″=1 mile.						Forest Survey, Bengal Presidency.	Survey of India Department.
	1897-98.		1896-97.		1897-98.		1896-97.		1897-98.		1896-97.		1897-98.		1896-97.		1897-98.		1896-97.		1897-98.		1896-97.		1897-98.		1896-97.		1897-98.	1896-97.		
	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	Sq. m.	R	R
North-Western Provinces and Oudh. *	...	...	...	...	(d) 184	7	...	...	...	...	...	...	...	...	...	...	77	39	...	...	...	...	...	...	...	...	...	...	77	...	(a) 9,394	...
Punjab *	589	9	...	...	...	...	...	...	200	20	802	9	...	...	...	...	52	51	87	30	...	...	...	...	...	...	...	...	252	889	(b) 12,258	...
	146	12	191	30	...	...	...	...	...	...	...	...	...	...	...	...	146	108	191	93	...	...	...	...	...	...	...	...	146	191	...	17,520
Central Provinces *	1,233	7	327	9	...	...	(d) 35	10	...	...	...	...	...	...	...	...	902	41	1,002	43	...	...	...	...	236	(c) 41	266	(c) 43	1,138	1,208	(c) 63,207	...
	...	...	1,770	7	...	...	(d) 408	8	...	...	...	...	...	...	...	...	...	...	697	71	...	...	...	...	...	...	...	...	...	697	...	...
Burma *	804	17	2,236	8	(d) 211	36	(d) 357	35	...	...	...	...	...	...	...	...	470	91	268	103	...	...	...	...	...	...	...	...	470	268	64,152	...
	...	...	...	...	773	56	512	82	...	...	...	...	118	81	106	51	406	193	395	170	...	...	...	...	...	...	...	...	524	501	...	1,31,267
Madras, No. 9 Party	...	...	1,450	25	...	...	(d) 524	...	...	...	...	...	...	...	...	...	...	...	121	324												
Madras, No. 10 Party	3,331	14	...	...	(d) 712	27	...	...	...	...	...	...	...	...	...	...	1,057	78	...	...	...	...	...	...	...	...	...	...	1,050	1,148	...	1,29,293
Madras, No. 19 Party	...	...	1,000	17	...	...	(d) 728	...	...	...	...	...	...	...	...	...	...	...	1,027	65												
Bombay	718	8	1,376	7	(d) 161	17	244	8	...	...	...	...	...	...	...	...	444	60	522	78	204	179	168	136	29	155	33	156	677	723	...	76,107
Total, Forest Survey, Bengal Presidency.	2,617	...	2,562	...	395	...	392	...	200	...	802	...	...	...	...	...	1,501	...	1,357	...	...	...	...	...	236	...	206	...	1,937	2,365	1,49,011	...
Total, Survey of India Department.	4,195	...	5,787	...	1,649	...	2,416	...	...	...	...	...	118	...	106	...	2,046	...	2,253	...	204	...	168	...	29	...	33	...	2,397	3,260	...	3,54,187
Grand Total	6,812	...	8,349	...	2,044	...	2,808	...	200	...	802	...	118	...	106	...	3,547	...	4,310	...	204	...	168	...	265	...	239	...	4,334	5,625	5,03,198	

* Surveys executed by the Forest Surveys, Bengal Presidency, the topographical cost-rates of which include expenditure in classification of forests and soils. The other surveys are by the Survey of India Department.
(a) Includes R3,652 on account of drawing and publishing Kheri, Gonda, Gorakhpur and Bahraich maps.
(b) Includes R208 on account of drawing and publishing 4″ and 1″ maps of Bashahr.
(c) Includes R2,993 on account of drawing and publishing maps of Jubbulpore, Narsingpur, Raipur, Bhandara and Balaghat and R4,531 for levelling operations.
(d) Linear miles.
(e) Average cost of both 4″ and 16″ surveys.



Reg. No. 458 Supdt. Forests.—Sept. 98—250.

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GANGADHAR MOULIAR

The total expenditure incurred on account of forest surveys in India was, as shown in the foregoing statement, R5,03,198 against R6,11,472 in the previous year of 1896-97. The decrease is due to No. 14 Party having been withdrawn from forest survey work.

The following statement shows the areas completed topographically by professional agency since 1873 and up to the close of the year under review, and the map of India which is attached illustrates the progress of the survey work :—

Survey Year.	Bengal.		North-Western Provinces and Oudh.				Punjab.		Central Provinces.		Burma.		Assam.	Berar.		Madras	Bombay.			By Forest Surveys, Bengal Presidency.	By Survey of India Department.	Total.
	Scale.		Scale.				Scale.		Scale.		Scale.		Scale.	Scale.		Scale.	Scale.					
	4"	2"	12"	8"	4"	2"	4"	1"	16"	4"	4"	2"	4"	4"	2"	4"	16"	8"	4"			
1873 to 1896-97	115	...	3	...	4,411	205	1,559	3,742	1,029	5,672	1,191	7	613	934	1,221	...	...	...	...	20,704	...	44,722
	597	215	...	215	494	...	1,193	...	...	4,831	3,366	1,263	...	...	...	6,266	240	2,371	3,042	...	24,018	
1897-98	...	...	...	...	77	...	52	200	236	902	470	...	...	...	...	...	...	...	...	1,937	...	4,334
	...	...	...	...	...	...	146	...	...	...	406	118	...	...	...	1,050	29	204	444	...	2,397	
	632	215	3	215	4,982	20	2,955	3,942 (a)	1,265	11,405	5,413	1,388	613	936	1,221	7,316	269	2,575	3,486	22,641	26,415	49,056
Total	847		5,105				6,897		12,670		6,801		613	2,157		7,316	6,330					

* Surveys executed by the Forest Surveys, Bengal Presidency, the other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor General and from annual reports of the Survey of India Department.
(a) Includes an area of 3,942 square miles on the 1" scale for topographical purposes.

Excluding the area of 3,942 square miles which was surveyed on the 1-inch scale for topographical purposes, the above statement shows that, up to the end of 1896-97, a total aggregate area of 45,114 square miles have been surveyed, on various scales, for forest purposes.

Work done in the various provinces during the year was as follows :—

Bengal.—Some minor surveys were carried out by departmental agency in connection with the laying down of coupes in the Darjeeling Division; and a few roads and minor details in other divisions were also surveyed. Some boundary surveys in the Palamau and Singbhum divisions are also recorded as having been done by Amins, but the Conservator does not consider these to be reliable in detail. Of the reserved forests, there still remains an area of 3,045 square miles to be brought under survey and about 1,300 square miles of protected forests are still unsurveyed. Much of this area does not require immediate survey, but arrangements are being made to take up the mapping of the more important forests, and a commencement will be made shortly with the Singbhum reserves.

North-Western Provinces and Oudh.—No surveys were undertaken by professional agency in either the Central or School Circle. In the Oudh Circle, the survey of the re-aligned Nepal river boundary touching on the Kheri District was completed. In the Central Circle 39 square miles of new reserves remain to be surveyed and in the School Circle 66 square miles of leased *chir* forests remain to be mapped. In the District protected forests of Garhwal, Almora and Naini Tal possibly the areas which may be set aside as permanent timber supplying estates may have to be surveyed.

Punjab.—Good progress has been made in the survey of the Chamba State including the leased forests in that State. A detachment of the Forest Survey Branch was employed upon this work during the summer months, in continuation of the previous season's operations, and an area of 200 square miles was completed on the 1-inch scale and 52 square miles of leased forests were surveyed on the 4-inch scale. The cost of the detail survey on the 4-inch scale was R51 per square mile and the smaller scale cost R20 per square mile. In Kulu, Kangra and Sirmur, No. 18 Party turned out an area of 146 square miles on the 4-inch scale at an average cost-rate of R108 per square mile. Of this area only 11 square miles comprise reserved forests under the control of the Forest Department, and the balance is made up of forest blocks situated in the Sirmur State.

Burma.—The survey of the reserved forests in Burma is being continued under a regular programme, and the operations will in future be carried on by the establishments of the Forest Surveys of the Bengal Presidency, with which No. 20 Party of the Survey of India has been

amalgamated, and the administrative charge of the Burma Forest Surveys will be in the hands of the Superintendent of Forest Surveys. During the year under review three detachments of the Forest Survey Branch were at work in Burma, *viz.*:—

I.—In the Salween-Attaran Division in Lower Burma.

II.—In the Pyinmana Division in Upper Burma.

III.—In the Ruby Mines Division in Upper Burma.

The total area topographically surveyed on the 4-inch scale by these three detachments was 470 square miles, at an average cost of R91 per square mile, which compares favourably with the previous season's work.

No. 20 Party of the Survey of India Department was employed in the Pegu and Shwegyin Divisions and completed an area of 406 square miles on the 4-inch scale in these Divisions, as well as an area of 118 square miles on the 2-inch scale on the Yenwe river adjoining Shwegyin. The cost-rate of the 4-inch topographical work was R193 per square mile and the 2-inch detail survey cost R81 per square mile, both rates being higher than in the previous year. A large amount of survey work was also done by local Forest officers which comprised for the most part linear or boundary surveys.

Central Provinces.—In continuation of previous season's operations, survey work was confined to the Saugor Division in the Northern Circle, and to Chindwara, Bilaspore, Nagpore-Wardah and Seoni in the Southern Circle, and some levelling was done in the Raipore Division to complete the forest maps. The total area topographically surveyed on the 4 and 16-inch scales was 1,138 square miles, of which 923 square miles were completed in the Southern and 215 in the Northern Circle. The average cost-rate of the 4-inch surveys was R41 per square mile, as compared with R43 in the previous year and the Local Government remarks that "the maps submitted have been of excellent quality." There still remains a forest area of about 6,000 square miles to be mapped, and this will occupy the present strength of the survey establishment about five or six years to complete, provided the present rate of progress is continued.

Assam.—No professional surveys were done, but some minor boundary surveys were carried out departmentally at a cost of R631. Regular surveys exist only for 524 square miles of reserves, but in view of the fact that the present demand for forest produce from the reserves is much less than the supply, there appears to be no urgent need of further survey operations.

Coorg.—There is little to record under this head; the only work done was a survey by departmental agency of the Bambucadu sandal plantation in South Coorg and 21½ miles of chain and compass traverse of a portion of the Arkeri forest boundary.

Ajmer.—An area of about 20 square miles, comprising the forests of Chang, Borwar, Kotra, Seliberi, Anspahar, and Beliawas, was surveyed by a surveyor of the Forest Survey Branch and mapped on the scale of 4-inch to a mile. The work was done under the supervision of the local Forest officer, at a total expenditure of R470 or R24 per square mile.

Baluchistan.—Beyond the survey of some village forests, done under the orders of the Revenue Commissioner to ascertain whether it was necessary to extend to the villages the right to building timber from the State forests, nothing in the way of surveys was done in Baluchistan.

Andamans.—There is nothing to record under this head.

Berar.—No professional surveys were done, but some minor surveys of new roads and areas allotted for cultivation in forest villages of the Ellichpur Division were done departmentally, and an area of 11 square miles of the Amdari reserve in the Buldana Division was also surveyed locally.

The Conservator remarks that the 1-inch Taluk maps, which are being prepared in the office of the Superintendent of the Forest Surveys, are urgently required. The preparation of these maps, 40 sheets in all, has been a most troublesome undertaking owing to the many changes that are constantly taking place in the forest areas and the frequent references that have had to be made to the Conservator. During the year under report it is stated that of the Taluk maps, 2 were published, 16 were in the press and 16 sheets were in progress. It is satisfactory to note, however, that the 16 sheets that were in progress have, since the close of the year, gone to the press, and the Conservator should soon be in possession of printed copies of the whole series of 1-inch Taluk maps.

Madras.—In the Madras Presidency two full parties of the Survey of India Department were employed, but, owing to unforeseen difficulties, the expected increase in the area of detail survey completed was not realized. Survey operations were confined to five districts, *viz.*—Kurnool, Cuddapah, South Arcot, Salem and Coimbatore, and the year's outturn of topographical work amounted to 1,050 square miles on the 4-inch scale.

The actual expense incurred, including cost of instruments for the survey year ending 31st August 1898, is ₹1,29,293, or an average of ₹119 per square mile, which is made up as follows :—

	₹	
Triangulation	14	per square mile.
Traversing	27	„ „
Topography 4"	78	„ „
TOTAL	119	

The cost of the detail survey is higher than the cost rate of the previous year, which is attributed to the work in Kurnool and Coimbatore being carried on under the most unfavourable conditions, the ground being difficult and the climate unhealthy.

Bombay.—In the Bombay Presidency an area of 677 square miles was surveyed by No. 17 Party of the Survey of India Department, *viz.* :—

In Kanara	444	square miles on the 4-inch scale.	
„ Thana, „ Nasik, „ Kolabu	204	„ „	8 „
„ Ahmednagar, „ Nasik	29	„ „	16 „
TOTAL	677		

The cost-rate of the detail survey on the several different scales was as follows :—

	₹	
4-inch scale	60	per square mile.
8-inch „	179	„ „
16-inch „	155	„ „

Compared with the previous year's figures, the cost-rate of the 4-inch work shows a decrease, the cost of the 16-inch work is about the same, but the cost-rate for the 8-inch survey shows a considerable increase. The latter is attributed to several causes, but principally to the death of several trained and experienced surveyors since last field season.

Sindh.—There is nothing to record under the head of surveys.

V.—WORKING-PLANS.

During the year, in the provinces of the Bengal Presidency, 17 plans, dealing with an area of 2,964 square miles, were sanctioned by Local Governments, as against 21 plans, and an area of 3,479 square miles, in the previous year. The Central Provinces easily head the list with completed plans for 1,537 square miles in the Northern Circle, and for 3,455 square miles in the Southern Circle—a rate of progress which is very satisfactory.

In North-Western Provinces and Oudh, the forests are practically all worked under sanctioned plans, and new work will consist of revision of existing plans as may be necessary. In Bengal a plan for the Tista Division was completed and sanctioned, but nearly 9,000 square miles remain to be taken in hand.

In other provinces there is but little progress to record as far as completed plans are concerned, but the fact that at the close of the year plans were under preparation and in many cases nearing completion for more than 14,000 square miles in the Bengal Presidency shows that due attention has been paid to this branch of forest administration. Much good work was done in the Punjab, in the Central Provinces, and in Burma where some important valuation surveys were carried out in the Western Circle. Out of a total forest area in the Bengal Presidency of 85,000 square miles, plans have been completed and sanctioned for 16,000 square miles, or

19 per cent., and it is probable that by the close of another year the area under working-plans will be more than 20,000 square miles.

In Madras three working-plans for 17 square miles were sanctioned, and there are still nearly 18,000 square miles for which plans have still to be compiled. The provisions of existing plans are in many cases reported to be unsuitable and the plans to be consequently not worked up to.

In Bombay much work has been done in laying down working-plan coupes. In the Northern Circle, three plans for 112 square miles were sanctioned by Government and a further area of 266 square miles was being dealt with. In the Central Circle, Form No. 50 shows an area of 1,164 square miles under completed working-plans. These plans have not, however, been sanctioned by Government, and it is not known how far these areas have been placed under scientific schemes of working.

As regards the provisions of existing working-plans, it is satisfactory to record that in the Bengal Presidency, for which alone control forms are submitted, they have been very well worked up to.

The following tables show for the Bengal Presidency :—

(A)

Areas brought under the control of sanctioned working-plans up to 30th June 1898 in the Provinces of the Bengal Presidency.

Provinces.	Forest area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Square miles.	Per cent.
Bengal	5,880	3,460	4,034	13,374	(*a*) 4,448	33
North-Western Provinces and Oudh.	3,851	94	43	3,988	(*b*) 3,308	83
Punjab	2,283	3,011	2,139	7,433	(*c*) 694	9
Burma (Lower)	7,373	...	...	7,373	1,543	21
Burma (Upper)	7,333	...	...	7,333	37	1
Central Provinces	19,206	...	292	19,498	(*d*) 4,992	26
Assam	3,590	...	15,683	19,273	533	3
Coorg	238	649	...	887	116	13
Ajmer	139	...	10	149	139	93
Baluchistan	170	...	...	170	...	...
Andamans	120	...	1,833	1,953	...	...
Berar	4,175	...	...	4,175	726	18
Total	54,358	7,214	24,034	85,606	16,536	19

N. B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement on page 2.

(*a*) On 1st July 1897 this stood at 4,250, during the year it was reduced by 14 square miles which were transferred for cultivation =4,236, and 212 square miles were added for new areas =4,448.

(*b*) Includes 78 square miles of closed forests dealt with in the Pilibhit plan for which a new plan is under preparation.

(*c*) Last year this was shown as 606, and in 1897-98 it was reduced to 688 by transfer and rectification. During the year plans for 117 square miles were sanctioned, but this included 111 square miles (Upper Ravi plan) of old areas now revised and already accounted for. The total therefore comes to 688+6=694.

(*d*) In 1896-97 this figure was 2,441; during 1897-98 it was reduced to 2,409 by rectification and transfer and increased by 2,583 (=4,992 square miles) for newly sanctioned plans.

(B)

Progress made in working-plans in the provinces of the Bengal Presidency during 1897-98.

Province.	Preliminary proposals submitted to the Inspector-General of Forests for working-plans.		Completed plans submitted for opinion and remarks of Inspector-General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector-General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
		Square miles.		Square miles.		Square miles.
Bengal	...	...	...	...	1	212
North-Western Provinces and Oudh	4	(a) 360	2	(b) 87	1	7
Punjab	1	90	1	1,811	3	(c) 117
Burma (Lower)	1	169	1	40	1	40
Burma (Upper)	1	207	1	79	...	...
Central Provinces	1	63	6	1,333	10	2,583
Berar	...	...	...	...	1	5
Coorg	...	...	3	61	...	...
Total	8	889	14	3,411	17	(d) 2,964

(a) Includes 106 square miles of old working-plan areas now being revised.
(b) Includes 60 square miles of old working-plan areas now being revised.
(c) Includes 111 square miles of old working-plan areas now being revised.
(d) See (c). The actual program for new areas is 2,964—111=2,853 square miles.

(C)

Comparative Statement of progress made in Working-Plans during 1897-98.

Province.	Areas for which Working-Plans have been completed and sanctioned.		Area for which Working-Plans are being compiled.		Areas for which Working-Plans have still to be taken in hand.	Total forest area, as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	
Bengal	(a)4,236	212	195	...	8,371	13,374	(a) Last year the area was 4,250 square miles, of which 14 square miles were transferred to the Civil Department for cultivation.
North-Western Provinces and Oudh. — Central Circle	1,470	(b) 7	(d) 60	...	(c)324	1,861	(b) Ranikhet Cantonment Working-Plan.
North-Western Provinces and Oudh. — Oudh ,,	(e)1,106	...	...	(f) 138	...	1,244	(c) This should really be 351 square miles, because Working-Plans for 27 square miles included in columns 2 and 3 are for district and cantonment forests not included in column 7 (Part of Behar plan, 19; Naini Tal Cantonment, 1; and Ranikhet Cantonment, 7).
North-Western Provinces and Oudh. — School ,,	225	...	...	145	13	383	
Punjab	(g) 688	(h) 6	2,842	17	3,880	7,433	(d) Excluding old areas now being revised and already included in column 2.
Burma (Lower) — Pegu Circle	1,023	...	...	...	2,213	(i) 3,236	
Burma (Lower) — Tenasserim Circle	480	30	110	97	3,410	(i) 4,137	(e) Includes 78 square miles of closed forests dealt with in the Pilibhit Working-Plan for which a new plan is under preparation.
Burma (Upper) — Eastern Circle	37	...	66	207	2,348	(j) 2,658	
Burma (Upper) — Western ,,	...	...	...	...	4,675	(j) 4,675	(f) Excluding (e).
Central Provinces — Northern Circle	...	1,537	5,159	1,404	(k)1,453	9,553	(g) According to last year's statement this should be 696; it has now been reduced by 8 square miles by transfer and rectification of area (Bashahr 3 and Khanga-Manga 7).
Central Provinces — Southern ,,	(k)2,409	1,046	2,588	979	(l)2,923	9,945	
Assam	533	...	...	...	18,740	19,273	(h) Excluding 111 square miles (revised Upper Ravi plan) sanctioned during the year, but already included in column 2.
Berar	721	5	...	...	3,449	4,175	
Coorg	196	...	84	...	687	887	(i) These are reserved areas only and exclude 20,301, 11,810, 14,307 and 16,334 square miles, respectively, of forests which have been afforded protection under the regulations as a preliminary to being reserved.
Baluchistan	...	...	...	...	170	170	
Andamans	...	...	...	...	1,953	1,953	(j) Marked out for disforestation: require no working-plans.
Ajmer	139	...	...	...	10	149	
Total Bengal Presidency	(m) 13,683	(n) 2,853	11,104	2,987	54,979	85,606	(k) According to last year's statement this should be 2,441, but during 1897-98 it was reduced by 32 square miles owing to rectification and transfer of lands for cultivation.
							(l) No plans are required for 2,460 square miles which have been excised for cultivation.
Madras Presidency† — Northern Circle	52	...	718	101	6,034	6,905	(m) Includes 15,083 square miles of unclassed forests for which working-plans are not required at present.
Madras Presidency† — Central ,,	42	...	143	96	6,546	6,827	(n) According to last year's statement, this should be 13,727, but during 1897-98, it was reduced 56 square miles by transfers, etc., see (e), (g) and (k).
Madras Presidency† — Southern ,,	90	17	36	7	5,371	5,521	(o) Excluding (k).
Total	184	17	897	204	17,951	19,253	(p) Includes 26 square miles of pasture reserves not to be organised.
Bombay Presidency† — Northern Circle	526	112	...	266	1,401	2,305	
Bombay Presidency† — Southern ,,	682	...	312	62	(o)4,234	5,289	
Bombay Presidency† — Central ,, *	888	276	1,578	1,111	2,409	6,262	
Bombay Presidency† — Sindh ,,	...	...	...	186	872	1,058	

* Not a single working-plan has as yet been sanctioned by Government; forest-blocks which have been divided into their 40 compartments and which are being worked under provisional working-plans are entered in columns 2 and 3.

† *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

Details of work done in the various provinces are as follows :—

Bengal.—The working-plan for the Tista Division, dealing with an area of 212 square miles, was completed and sanctioned during the year. A plan for the Tista valley forests (area 12 square miles) and that for the Jalpaiguri Division forests (area 183 square miles) were under preparation at the close of the year. In this Circle there remain 8,731 square miles still to be dealt with, which is the largest area left in any province except Assam.

North-Western Provinces and Oudh.—The forests in these provinces, which are managed by the Forest Department, are now practically all worked under the provisions of sanctioned plans. The exception is the Bundelkhand Division, where it has been decided that for the present no plan is required. During the year a plan for the Ranikhet Cantonment forests was sanctioned, and plans for the forests of Naini Tal and of the Ranikhet Sub-division were under preparation and nearing completion. In Oudh, a plan for the Gonda forests was under preparation, and a commencement was made for the preparation of a plan for the open forests of Pilibhit. In the School Circle work was commenced on the plan for the Jaunsar Division.

Punjab.—Although no new plans for Government forests were sanctioned during the year, a considerable amount of progress is recorded. The existing plan for the Upper Ravi forests was revised, and plans dealing with an area of 2,859 square miles were under preparation at the close of the year. The plan for the Kulu forests (area 1,811 square miles) was practically completed and has since been sanctioned.

Burma.—In Burma, a working-plan for the Kyaukmasin forest in the Tenasserim Circle was the only one sanctioned during the year. A considerable amount of preparatory work was done in the Tenassarim Circle and in the Western Circle of Upper Burma, where important linear valuation surveys were carried out over 67 square miles of the most valuable teak-bearing forests. In Burma the huge area of 12,000 square miles of reserved forests remains for which working-plans have still to be taken in hand.

Central Provinces.—The Local Government reviewing the year's work says :—

7. "Good progress has been made during the year in the preparation of working-plans in both Circles. In the Southern Circle nine plans, dealing with 1,640 square miles, were sanctioned during the year, bringing the total area under definite working-plans up to 4,049 square miles or 54 per cent. of the total area of 7,484 square miles eventually to be so treated. Plans for over 2,973 square miles are in preparation, and a considerable portion is already in print. Every forest of present importance is now worked under the prescription of a sanctioned plan, while of the area for which plans are at present needed, only 462 square miles are still without them, and the whole of this area is of minor importance.

In the Northern Circle working-plans have been prepared for 1,537 square miles, and plans for the remaining area of 6,563 square miles for which plans are required are in hand. In the Mandla Division, owing to delay in survey, only preliminary working-plans will be possible for the present, but it is believed that, when the next working season opens, every forest in the Circle will be worked under a regular working-plan. The Chief Commissioner hopes that this anticipation will be fulfilled. If it is, the state of the province in this respect will be most satisfactory."

Assam.—The only work under this head was the preparation of a supplement to the Goalpara plan, under which the hitherto unregulated fellings of trees other than sál were systematized. The Goalpara working-plan for sál trees has so far not been worked up to, and there is at present an available balance of some 22,000 sál trees standing in the coupes.

Berar.—A working-plan for the babul forests of Akola was sanctioned, and the area now under working-plans in Berar stands at 726 square miles. The large area of 3,449 square miles still appears for which working-plans still require to be taken in hand. Of this area 2,326 square miles are treated under so-called "Provisional Working-Plans", which will, it is hoped, be elaborated in the near future into regular working-plans.

Coorg.—Plans for the Devamachi and Ackeri forests were revised during the year, and that for the Dubari forest was taken in hand. The principal work remaining is a plan for the sandal-bearing area throughout the Division, for which a preliminary report was submitted. For the Ghat forests, plans are not at present required.

Baluchistan.—There are no working-plans.

Andamans.—No progress is recorded.

Ajmer.—The provisions of the existing working-plan were carried out as far as possible, but it remains to lay out the working-plan compartments on the ground.

Madras.—Working-plans were sanctioned for an area of 17 square miles in the Tinnevelly district, and plans for an area of 1,101 square miles are shown as under preparation, chiefly in the Northern Circle. A perusal of the reports, however, seems to show that in very many cases the provisions of existing plans are not carried out, and the fact remains that over an area of nearly 18,000 square miles of forests, no plans of any kind are in force.

Bombay.—In the Northern Circle good progress is reported, and plans dealing with an area of 112 square miles were sanctioned by Government during the year. A further area of 266 square miles was also being dealt with. A good deal of useful work was also done in laying out the working-plan coupes on the ground.

In the Central Circle Form No. 50 shows that over a large area efforts are being made to introduce systematized working, and it would appear that plans have been completed for 1,164 square miles. These plans, however, have not been sanctioned by Government, and the division of a forest into 40 blocks cannot be accepted as a working-plan for it. The Form is therefore misleading.

In the Southern Circle no plans were sanctioned during the year, but plans dealing with 373 square miles were under preparation.

In Sindh fair progress was made in the Hyderabad Division.

In the Bombay Presidency the large area of nearly 9,000 square miles remains to be taken in hand, and of the plans shown as completed or under preparation in the Central Circle, it would seem that many of them consist in the simple division of a track into 40 compartments.

VI.—Communications and Buildings.

On roads and bridges a total expenditure of nearly ₹1,73,000 was incurred, which is slightly higher than in the previous year. The increase, amounting to ₹8,000, occurred almost entirely in the North-Western Provinces and Oudh, which is responsible for more than one-fourth of the total expenditure. Good work was again done in Madras in opening out the forests, and ₹23,000 were spent in the construction of 105 miles of forest roads. The average rate per mile (₹219) is somewhat high as compared with that prevailing in the Bengal Presidency, where 527 miles of roads were constructed for ₹51,740 or for an average rate of ₹98 per mile. In Bengal and Berar good work was also done, 67 miles of new roads were constructed in the former province and 87 miles in the latter, where famine relief work often took the form of useful roads. The total expenditure on buildings amounted to nearly ₹2,64,000, which is much the same as in the previous year. The largest expenditure took place in the North-Western Provinces and Oudh (₹49,000), Burma (₹54,000) and in Madras (₹44,000) where repairs to existing buildings cost ₹23,000. Much good work has been done in most provinces in providing the officers of the subordinate establishment with suitable accommodation. The following statement shows the expenditure on roads and buildings in the various Provinces under "New Work" and "Repairs".

Province.	New Work.		Repairs.		Total.
	Buildings.	Roads.	Buildings.	Roads.	
	₹	₹	₹	₹	₹
Bengal	21,568	11,592	11,341	10,745	55,246
North-Western Provinces and Oudh	33,935	20,470	15,701	34,617	1,04,723
Punjab	9,382	3,651	3,802	3,213	20,048
Burma (Lower)	9,794	3,265	5,980	6,139	25,178
Burma (Upper)	33,408	782	5,162	492	39,794
Central Provinces	7,880	2,087	6,425	3,061	19,453
Assam	14,567	1,307	8,605	1,940	26,419
Coorg	1,392	606	1,161	2,567	5,726
Ajmer	...	605	141	30	776
Baluchistan	...	...	104	...	104
Andamans	517	80	78	722	1,397
Berar	3,354	7,345	2,999	7,293	20,991
Total Bengal Presidency	1,35,797	51,740	61,499	70,819	3,19,855
Madras	21,169	23,335	23,036	16,137	83,677
Bombay	16,664	5,498	5,959	5,431	33,552
Grand Total	1,73,630	80,573	90,494	92,387	4,37,084

Details of work done in the various provinces are as follows:—

Bengal.—An inspection bungalow was erected in the Mim block of the Darjeeling Division. Rest-houses were completed at Sivoke (₹1,427) in Kurseong, at Kuntimari (₹900) in Jalpaiguri and at Buxa Duars; the head-quarters bungalow, which had been destroyed by the earthquake, was reconstructed at a cost of ₹3,458. Houses were also constructed at Banki, Tulka and at Derras. At Khulna, the head-quarters of the Sundarbans Division, a bungalow was commenced and ₹1,500 spent on it during the year. Sixty-seven miles of new roads and paths were made, as against 72 miles in the previous year. The chief expenditure was in the Darjeeling Division where ₹10,151 were spent out of the total expenditure of ₹21,852. A useful cart-road is being made from the Tista-Bridge road to the Torchu by the Political Officer of Sikkim, and in Singhbhum the cart-road from Goilkora to Kulipiri was completed. The following statement compares the expenditure of the year with that of the previous year 1896-97:—

Nature of work.	Buildings.		Roads and Bridges.		Total.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
	₹	₹	₹	₹	₹	₹
New construction	12,407	21,568	10,480	11,592	22,887	33,160
Repairs	10,132	11,341	14,226	10,745	24,358	22,086
Unapportioned	664	1,395	441	120	1,105	1,515
Total	23,203	34,304	25,147	22,457	48,350	56,761

North-Western Provinces and Oudh.—The Local Government thus reviews the work of the year.

"During the year 131 miles of new roads were constructed and 3,626 miles were repaired, the Central Circle showing the greatest outturn of work of each kind. The following table shows the expenditure incurred:—

Circle.	Roads and Bridges.		Buildings.		Other works.	Total.	Percentage on gross expenditure.
	New works.	Repairs.	New works.	Repairs.			
	₹	₹	₹	₹	₹	₹	
Central	*4,162	29,267	9,933	4,098	1,758	40,218	12·71
Oudh	4,787	6,761	13,292	4,543	2,168	31,461	11·58
School	11,521	7,589	9,541	6,151	1,404	36,206	10·45
Total	20,470	34,617	32,676	14,792	5,330	1,07,885	11·54
Total, 1897-98	55,087		47,468		5,330	1,07,885	11·54
Total, 1896-97	48,309		36,792		7,556	92,657	10·60
Total, 1895-96	54,158		47,787		6,356	1,08,301	11·62

* The amount debited to the accounts of 1897-98 was ₹7,056, but of this sum ₹2,894 was shown in 1896-97.

The total expenditure rose again almost to the level of that incurred in 1895-96, exceeding that of 1896-97 by more than ₹15,000. The increase occurred chiefly in the School Circle, under roads and bridges, where the floods of August 1897 had done great damage in the Jaunsár Division; and in the Oudh Circle under new buildings, where, among other works, three rest-houses and a set of range-quarters were built. In the Central Circle, the construction of the new Forest office in Naini Tal, which has been sanctioned by the Government of India, is awaiting the settlement of a reference to that Government in regard to the apportionment of the funds required for it, in the event of the construction being undertaken, as is desirable, by the Public Works Department."

The expenditure on repairs to roads is far heavier in the North-Western Provinces and Oudh than in any other province. The heaviest expenditure is incurred in the Central Circle, where 1,900 miles of roads which are many of them rendered impassable in the rains

have to be annually renewed at a cost of some R20,000 before the produce of the forests can be placed on the markets.

Punjab.—The expenditure on roads and buildings, as compared with that of the previous year, was as follows:—

Nature of work.	Roads and Bridges.		Buildings.	
	1896-97.	1897-98.	1896-97.	1897-98.
	R	R	R	R
New work	1,271	3,651	13,004	9,382
Repairs	2,346	3,213	4,771	3,802
Total	3,617	6,864	17,775	13,184

The increased expenditure under roads was due to more extensive repairs and to the construction of roads and paths in Kangra, Rawalpindi and Chamba. One hundred miles of new roads were constructed and 526 miles were repaired. The work is chiefly confined to the hill Divisions where more roads are required for opening out the forests.

Good progress was made in the construction of rest-houses and range-quarters, but there is still much to be done in this direction.

Burma.—In Tenasserim a rest-house was built at Tabet-Kwe and another at Kamamaung in the Kado Division, and much good work was done in constructing quarters for the subordinate staff. In Pegu no important building work was done; small rest-houses were built at Thayetmyo and Prome, and others were being constructed at Henzada and Pegu. Existing buildings were kept in repair for R4,175. In the Eastern Circle R14,702 were spent on new works, the chief work being the dismantling and reconstruction of the bungalow and out-houses at Maymyo.

In the Southern Shan States the divisional forest bungalow is approaching completion, and R7,186 were spent on it during the year. In the Western Circle R18,736 were spent on new buildings, a head-quarters house at Mônywa (R9,690) being the most important.

Under communications R2,465 were spent in Tenasserim in clearing rivers by blasting. In Pegu ¼ mile of metalled road was made for R800, and R6,096 was expended on repairs to roads. In the Eastern Circle, the only important work was done by the Bombay-Burma Trading Corporation, Limited, who constructed 83 miles of export roads at a cost of R3,398 and spent R10,000 on bridges and clearing creeks, etc, in the Pyinmana forests. In the Western Circle two bridges were constructed over streams in the Yu reserve, and R379 only were expended on road works.

Central Provinces.—Owing to the unsatisfactory financial condition the expenditure on roads and buildings was kept as low as possible, and shows a great reduction on that of the years 1894-95 and 1895-96.

The following shows the expenditure, compared with that of the previous year:—

Year.	Buildings.			Roads.		
	New work.	Repairs.	Total.	New work.	Repairs.	Total.
	R	R	R	R	R	R
1896-97	9,838	4,580	14,418	1,192	2,748	3,940
1897-98	7,780	6,425	14,205	2,087	3,061	5,148

In the Southern Circle a new range head-quarters was constructed at Bhandara, and range-quarters were built at Dhamtari, Balod and North and South Sihawa, a checking post was built at Seoni and several sub-range quarters were constructed. Thirty-one miles of new roads were made at a cost of R884, and 609 miles of cart-roads were kept in order for R2,041.

In the Northern Circle a number of small buildings were made for subordinates at a cost of R5,316, and repairs to 332 buildings cost R2,729. Thirty-one and-a-half miles of new roads were constructed and 148 miles of roads were repaired, the total expenditure being R2,223.

Assam.—The following compares the expenditure with that of the previous year :—

Nature of work.	Roads.	Buildings.	Other works.	Total.
	R	R	R	R
New works	1,307	14,567	...	15,874
Repairs	1,940	8,605	1,512	12,057
Grand Total, 1897-98	3,247	23,172	1,512	27,931
Grand Total, 1896-97	2,608	11,123	1,389	15,210

The most important building works were an inspection bungalow at Gauhati, head-quarter bungalow at Tezpur and out-houses, on which R4,004 were spent during the year. A large amount of repairs and reconstruction to buildings was entailed by the damage done by the earthquake of 1897. There were no important road works undertaken.

Coorg.—The expenditure of the year contrasted with that of the previous year was :—

Nature of work.	Roads.		Buildings.		Other works.		Total.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
	R	R	R	R	R	R	R	R
New works .	609	606	2,580	1,392	...	...	3,189	1,998
Repairs .	1,886	2,576	647	1,161	79	269	2,612	4,006

No large building works were undertaken, the expenditure on new work being incurred on the erection of quarters for foresters and guards : 8¾ miles of new roads were constructed and 99 miles repaired.

Ajmer.—The old barracks of Beawar Cantonment were repaired and made suitable for a range office. The house on the Nagpahar hill was repaired, and forest chowkies kept in order. Nearly 18 miles of new roads were completed at a cost of R605, whilst R30 were spent on repairs.

Baluchistan.—Repairs to existing buildings cost R104. There was no expenditure on roads, inspection paths in plantations being made by the Forest establishment without extra cost.

Andamans.—Five new barracks were constructed at a cost of R400. Two elephant sheds were built, and an inspection bungalow was commenced at Jirkatang. Including repairs, a total expenditure of R595 was incurred. Under communications the chief item was R722 on the upkeep of 6½ miles of tramline.

Berar.—The Commissioner in his review remarks :—

"In the Ellichpur Division 17 miles of road were constructed at a cost of R4,684 and 3 in the Amraoti Division costing R1,503, and R602 were spent in the Akola and Basim Divisions on 21 miles of cart-tracks.

Very good work was done by Mr. Williamson, the Deputy Conservator of the Ellichpur Division, in constructing wells under the scheme for the improvement of the water-supply of the Melghat. Twenty-seven were finished during the year, and altogether 80 have now been built; and the importance of the boon that in this way has been conferred on the *Korku* population cannot be doubted."

Madras.—The expenditure of the two years 1896-97 and 1897-98 was as follows :—

	1896-97.	1897-98.
	R	R
Roads and bridges	47,268	33,689
Buildings	48,342	44,205
Other works	4,223	6,783

In the Northern Circle R11,649 were spent on roads, chiefly in Kistna, Godavari, and Kurnool. In the Central Circle R7,010 were spent, chiefly in Cuddapah and Salem, whilst in the Southern Circle R15,030 were spent, chiefly in the Nilgiris, Coimbatore, and Tinnevelly districts. Altogether 105 miles of new roads were constructed at a cost of R23,335.

Under buildings the most important work in the Northern Circle was the construction of six range camps in Kistna. Considerable expense was incurred on repairs to buildings in the same district, and to the range and head-quarters bungalows in Kurnool. In the Central Circle most work was at Chingleput, where a rest-house and a forest-guard's hut were constructed. In the Southern Circle several range-quarters were constructed in South Malabar. In the Nilgiris the Benne station was reconstructed and an inspection lodge built at Susigundi. A rest-house was commenced at Tamarakarai in North Coimbatore, and in South Coimbatore, foresters' quarters were re-built at Annipadi, the saw-mill building and the tramline to the workshop were completed. The tramway for Nellore was worked to a considerably larger extent than in the previous year, while the tramways to Cuddapah and South Coimbatore were less used.

Bombay.—The Bombay Government in their review of forest administration of the year remark :—

"Good progress was made in opening up the forests in the difficult country in the Point and Igatpuri talukas of Nasik at a cost of R19,518. Attention was paid to improving the communications in Kanara in the Southern Circle and in Surat in the Northern. In Sindh, eight sluices were constructed to permit of irrigation through the river protective embankments. No buildings of importance were constructed, but the provision of houses for subordinates was proceeded with. The total expenditure on communications amounted to R30,446 and on buildings to R30,118."

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CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

There has been an increase of some 900 in the number of cases of breaches of forest rules disposed of before the Courts, the increase occurring chiefly in Madras and Bombay. Of the total number of cases in the Bengal Presidency, Madras and Bombay, convictions were obtained in 82 per cent., which may be regarded as very satisfactory. The number of cases compounded under section 67 of the Indian Forest Act, and the corresponding sections of other Forest Acts, also show a considerable increase again, chiefly in Madras and Bombay, where the increasing area of the reserved forests year by year naturally leads to an increased number of cases. The following table gives the number of cases tried by the Courts and compounded during the two years 1896-97 and 1897-98 in the various provinces :—

Province.	Number of cases disposed of by the Courts.		Number of cases compounded.		Total.		Proportion of convictions to the total number of cases decided by the Courts.	
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
							Per cent	Per cent.
Bengal	360	279	1,631	1,158	1,991	1,437	89·4	87·8
North-Western Provinces and Oudh.	125	134	411	481	536	615	80·0	76·8
Punjab	1,005	1,009	2,017	2,393	3,022	3,402	74·0	79·2
Burma (Lower)	322	301	2,084	1,890	2,406	2,191	80·4	82·4
Burma (Upper)	201	180	320	413	521	593	79·6	80·5
Central Provinces	275	346	4,184	4,156	4,459	4,502	77·8	80·6
Assam	77	93	196	249	273	342	77·9	86·0
Coorg	17	10	14	100	31	110	78·5	90·0
Ajmer	112	81	148	129	260	210	94·6	97·5
Baluchistan	38	40	242	246	280	286	76·3	65·0
Andamans	5	5	...	...	5	5	60·0	100
Total	2,527	2,478	11,247	11,215	13,774	13,693	79·2	81·4
Berar	182	148	816	743	998	891	79·6	80·4
Total Bengal Presidency	2,709	2,626	12,063	11,958	14,772	14,584	79·2	81·4
Madras	4,474	4,025	7,694	5,793	12,168	9,818	85·4	83·3
Bombay	2,461	2,127	6,918	5,198	9,379	7,325	79·2	75·8
GRAND TOTAL	9,644	8,778	26,675	22,949	36,319	31,727	82·1	80·9

In the following table the offences are classified in accordance with their character :—

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				Grand total of cases.
	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling of appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	
Bengal	40	186	21	62	...	965	651	330	273	12	...	...	313	1,251	672	392	2,230
North-Western Provinces and Oudh.	9	61	27	19	39	136	134	110	64	5	...	7	72	205	161	131	569
Punjab	57	578	290	99	16	305	2,084	27	389	67	10	5	761	1,519	1,385	131	3,306
Burma (Lower)	26	175	1	12	5	1,725	12	291	9	15	...	1	60	3,915	13	451	2,419
Burma (Upper)	4	178	2	31	4	221	22	91	11	6	1	6	19	405	28	115	567
Central Provinces	107	97	37	34	103	2,235	1,205	83	200	155	...	...	410	2,987	1,242	117	4,756
Assam	5	49	1	17	3	460	...	29	22	2	...	...	30	211	1	46	288
Coorg	3	12	...	7	...	6	6	3	...	...	...	...	3	12	6	10	36
Ajmer	3	80	27	2	...	100	41	7	1	15	...	...	4	204	68	10	276
Baluchistan	2	21	8	4	...	35	105	9	3	3	...	3	5	59	113	9	186
Andamans	...	5	...	...	...	...	...	...	...	...	...	...	...	5	...	...	5
Berar	7	121	5	54	16	537	68	187	24	19	...	...	47	677	73	231	1,028
Total Bengal Presidency.	263	1,643	418	369	165	7,533	3,233	1,059	976	279	11	17	1,101	9,459	3,063	1,248	15,097
Madras	44	2,436	1,700	441	3	4,190	3,278	367	145	916	874	371	192	7,552	5,852	1,179	14,775
Bombay	137	1,341	653	342	83	2,671	3,803	419	1,937	1,555	1,141	81	2,157	5,567	5,597	842	14,143
Grand Total	444	5,420	2,771	1,152	251	14,401	10,314	1,845	2,258	2,750	2,026	469	3,453	22,554	16,511	3,467	44,565

It is thus seen that by far the greatest number of offences were those of unauthorized felling or appropriation of forest produce. Many of these were of a petty character, and 70 per cent. of them were properly disposed of by compounding. The number of cases of injury to forest by fire was 3,453, of which no less than 2,758 remained undetected. Of these 676 occurred in the Bengal Presidency, 145 in Madras and the remainder in Bombay, where out of a total of 2,157 cases of injury of the forests by fire, 137 cases were brought before the Courts and 83 cases were compounded, leaving 89 per cent. of the cases undetected. In the Bengal Presidency 61 per cent. of the cases of injury by fire remained undetected.

II.—Protection from fire.

During the year under review the area of forest over which special protective measures were in force was increased by 815 square miles and at the close of the year stood at 31,704 square miles.

Of this area 91 per cent. was saved from fire at a cost of R3,03,623; and this though not so good as in the previous year must be considered a satisfactory result. The North-Western Provinces and Oudh have the best record, inasmuch that 75 per cent. of the reserved forests are now under special fire-protection, and that of the area attempted to be saved from fire, only 2·79 per cent. was burnt. Fire-protection was also successful in the Central Provinces, Lower Burma, Assam, Ajmer and Madras; whilst in Bombay, though the percentage of failure is high (13 per cent.), a far larger area of forest was actually saved from fire than in any other Province.

The following table shows the results of fire-protection in the various Provinces :—

Province.	Area, in square miles.				Proportion of failures to area attempted.		Cost.				Proportion of area under fire-protection to total area of Reserves (*Leased* Forests included).	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
					Per cent.	Per cent.	R	R	Pies.	Pies.	Per cent.	Per cent.
Bengal	4,953	1,957	1,424	1,895	27·69	3·16	7½	5½	2·3	1·7	14·60	14·78
North-Western Provinces and Oudh.	3,020	(a)3,004	2,936	(a)2,918	2·79	(a)3·03	21½	(a)21½	6·4	(a)6·4	75·72	(a)75·90
Punjab	400	538	371	531	7·25	1·30	13	19½	3·9	5·8	5·38	7·69
Burma (Lower)	1,064	1,056	1,019	(b) 932	4·23	7·10	48	55½	14·1	16·5	14·43	14·56
Burma (Upper)	1,000	767	737	334	26·20	57·25	19½	29	5·9	8·5	13·63	11·26
Central Provinces	5,948	5,961	5,712	5,728	3·95	3·89	9½	9½	3·0	3·0	30·50	30·40
Assam	1,204	1,202	1,154	1,195	5·31	0·50	8	7	2·3	2·1	6·24	8·05
Coorg	204	204	177	204	13·23	...	48½	40½	14·6	12·1	19·95	22·97
Ajmer	139	139	137	139	1·44	...	3½	3½	1·0	0·9	93·23	93·23
Total	14,932	14,828	13,647	13,911	8·60	6·18	15½	15½	4·7	4·7	(c)18·83	(c)20·12
Berar	1,444	1,429	1,434	1,396	0·69	2·17	9½	9½	2·9	2·8	34·53	34·12
Total Bengal Presidency	16,376	16,257	15,081	15,309	7·90	5·83	15½	15½	4·5	4·5	(c)19·61	(c)20·87
Madras	5,321	5,362	4,935	5,287	6·31	1·39	7½	7½	2·0	2·0	27·68	28·41
Bombay	10,007	9,270	8,697	8,760	13·09	5·50	3½	3½	1·1	1·1	67·11	61·74
GRAND TOTAL	31,704	30,889	28,763	29,356	9·27	4·96	10½	10½	3·1	3·1	(c)26·94	(c)27·62

(a) Figures differ from those given in the 1896-97 Review, owing to revised figures having been furnished by the Central Circle Conservator in the 1897-98 Report.
(b) Erroneously shown as 931 square miles in the Conservator's Report for 1896-97.
(c) Baluchistan and Andamans left out of account, as no special measures were taken for protection from fire.

The subjoined table analyzes the origin of the fires reported :—

PROVINCE.	(A.) Fires caused by accident, or through carelessness in burning fire-lines.		(B.) Fires entering the forests by crossing exterior fire-traces.		(C.) FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA, CAUSED—														Causes unknown.		TOTAL OF (A), (B) AND (C).	
					By workmen employed in the forests, by purchasers of forest-produce and by grass-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightning, or by fire-balloons.		By INTENTIONAL BURNING.									
													In order to obtain new grass.		In order to turn-out game, or to reduce cover.		Maliciously.		Total.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
Bengal	7	5,403	19	16,333	3	570	41	66,699	1	2,560	1	...	22	46,448	30	98,800	10	26,575	62	171,823	81	112,730	215	376,118
North-Western Provinces and Oudh. — Central Circle	4	77	13	25,510	6	350	10	773	2	296	2	611	2	4,287	...	...	2	3,099	4	5,386	10	1,921	51	34,724
Oudh Circle	7	2,663	8	2,925	...	...	2	114	...	...	2	4	3	404	...	...	9	2,607	12	3,011	9	272	40	8,989
School Circle	4	217	5	920	2	18	4	629	..	...	13	5,129	1	1,260	2	337	...	...	3	1,597	10	2,958	41	11,459
TOTAL	15	2,957	26	29,355	8	168	16	1,516	2	296	17	5,735	6	5,951	2	337	11	3,705	19	9,994	29	5,151	132	55,172
Punjab	7	211	20	1,921	23	1,065	71	9,501	...	...	2	700	182	30,054	...	...	2	28	184	30,082	58	4,440	366	47,350
Lower Burma — Pegu Circle	10	585	26	18,340	6	303	11	6,570	1	6	...	...	...	...	1	113	2	1,727	3	1,840	...	...	57	27,644
Tenasserim Circle	...	...	3	232	2	45	3	84	...	...	...	...	...	...	...	...	1	344	1	344	2	403	11	1,108
TOTAL	10	585	29	18,572	8	348	14	6,654	1	6	...	...	...	...	1	113	3	2,071	4	2,184	2	403	68	28,752
Upper Burma — Eastern Circle	1	45	4	1,374	1	73	6	624	...	...	...	...	...	...	2	3,000	1	8	3	3,008	15	44,213	30	54,337
Western Circle	1	600	9	47,840	...	...	2	1,200	...	...	...	...	...	...	...	...	1	1,000	1	1,000	15	63,326	28	113,966
TOTAL	2	645	13	49,214	1	73	8	1,824	...	...	...	...	...	...	2	3,000	2	1,008	4	4,008	30	107,539	58	168,303
Central Provinces — Northern Circle	35	17,486	146	123,680	33	71,389	55	35,695	10	1,259	2	96	3	14,292	4	510	7	3,373	14	18,175	61	122,370	256	391,150
Southern Circle	2	220	15	7,433	...	...	10	1,780	...	...	1	8	...	...	1	4	2	321	3	325	25	12,995	66	22,761
TOTAL	37	17,706	161	131,113	33	71,389	65	37,475	10	1,259	3	104	3	14,292	5	514	9	3,694	17	18,500	86	136,365	322	413,911
Assam	4	6	14	649	6	240	4	43,652	...	...	...	...	...	...	2	34	...	...	2	34	4	37	34	44,618
Coorg	5	1,375	10	4,083	...	...	9	5,667	...	...	...	...	2	45	2	1,515	11	4,707	15	6,167	...	...	39	17,292
Ajmer	1	98	1	60	2	1,306	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	5	1,469
Berar	3	1,286	...	...	3	1,163	5	2,624	...	...	3	131	...	...	1	600	5	618	6	1,248	...	...	20	6,452
Madras — Northern Circle	1	10	6	885	...	...	10	1,231	1	70	...	...	5	610	3	905	2	13,220	15	14,795	43	24,858	76	41,849
Central Circle	3	1,147	26	6,098	5	181	11	1,171	3	1,501	...	...	28	5,034	...	...	13	1,176	41	6,210	98	36,824	192	53,132
Southern Circle	2	302	41	60,648	18	774	13	3,915	3	33	5	1,146	15	1,882	5	314	37	14,732	57	16,928	84	17,363	223	101,109
TOTAL	11	1,459	73	67,631	23	955	34	6,317	7	1,604	5	1,146	48	7,526	13	1,219	52	29,128	113	37,933	225	78,045	491	196,090
Bombay — Northern Circle	29	2,114	95	17,738	7	332	156	22,111	16	872	...	...	...	...	51	7,888	28	6,005	79	13,893	302	47,325	694	101,385
Central Circle	42	3,372	76	91,361	4	177	326	42,923	16	372	...	...	1	176	22	5,190	33	1,612	56	6,978	192	121,324	712	266,107
Southern Circle	5	737	123	12,719	5	150	207	22,466	21	730	33	1,371	5	61	18	2,042	5	2,801	28	4,907	324	23,641	746	65,961
Sindh Circle	...	...	6	277	...	...	23	380	3	18	...	...	15	780	...	...	2	89	17	869	...	...	49	1,544
TOTAL	86	6,223	300	122,095	16	659	712	87,480	56	1,992	33	1,371	21	1,017	91	15,120	68	10,510	180	26,647	818	192,490	2,201	433,997
GRAND TOTAL	188	37,994	656	441,026	126	77,976	979	269,409	77	7,717	64	9,187	294	105,333	149	126,152	173	82,125	606	313,620	1,315	6,38,205	44,051	1,795,124

From this table it will be observed that the total number of fires reported was 4,051; of these 188, or 4·6 per cent., occurred from carelessness or accident when burning fire-lines, and that 666 or 16·4 per cent. crossed exterior fire-traces, generally, it may be presumed, before these had been cleared. In 1,345 cases the causes of the fires remained undiscovered, and 606 fires were caused maliciously, or intentionally, to obtain new grass or to turn out game. The total number of fires reported was 1,388 more than in the previous year.

In continuation of the remarks made in the review for the year 1896-97 regarding the beneficial influence of fire-protection, the following remarks recorded by Mr. Hearle, then in charge of the Naini Tal Forest Division, are worthy of being placed on record:—

"The following are the actual figures of an enumeration-survey made in Jaunsar in 1887:—

		5th-class chir trees (3" to 6" diameter). Number per acre.	4th-class chir trees (6" to 12" diameter). Number per acre.
Burnt over yearly	Chatra-block / Karali do.	4·9	7·9
Protected from fire	Rausa do.	28·5	8·3

The enormous preponderance of fifth-class chir poles in the Rausa block may be safely taken as being mostly due to its successful fire-protection during the previous 15 years. To come nearer home to Mr. Gracey's own district, the following figures were obtained from enumeration-surveys made in 1881 and during the present year (1898). They are facts and cannot be controverted.

In all the successfully fire-protected blocks around Ranikhet there were, in 1881, 374,836 chir poles of from 6" to 1½" in girth, but in 1898 the number was found to be 573,612, which is equivalent to an increase of 53 per cent. in less than 20 years, and this in spite of the enormous number of chir poles granted away yearly to the right-holders. The efficacy of fire-protection should therefore be quite outside the pale of discussion, as it is indeed with everyone who has studied the question seriously."

Observations comparing the growth of trees in areas protected from fires with that in areas annually burnt continued to be made and will after some years give valuable data on this interesting subject. The observations made tend to show that the growth of trees in fire-protected areas is considerably more rapid than that of trees in areas exposed to fires.

III.—Regulation of Grazing.

The following table shows the area closed against grazing to all animals and to browsers only:—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,820	5,229	20	3,460	2,406	11	4,094	1	...	13,374	7,396	31
North-Western Provinces and Oudh	3,651	1,782	551	94	17	4	43	1	30	3,933	1,800	585
Punjab	2,213	682	453	3,011	74	69	2,139	12	173	7,433	768	700
Burma (Lower)	7,373	6,869	...	...	...	...	(a)	2	...	7,373	6,891	...
Burma (Upper)	7,333	5,952	2	...	...	...	(a)	...	...	7,333	5,957	2
Central Provinces	19,206	2,391	7,019	...	...	...	292	...	20	19,498	2,391	7,039
Assam	3,590	2,646	926	...	...	...	15,683	...	...	19,273	2,646	926
Coorg	238	151	...	619	...	...	...	...	...	837	151	...
Ajmer	139	47	139	...	...	...	10	...	10	149	47	149
Baluchistan	170	116	...	...	...	...	...	...	...	170	116	...
Andamans	120	...	...	...	...	...	1,833	...	...	1,953	...	...
Berar	4,175	1,184	1031	...	...	...	...	...	...	4,175	1,184	1031
Total Bengal Presidency	54,358	27,144	9,213½	7,214	2,197	84	24,034	16	238	85,605	29,357	9,535½
Madras "	13,775	Details not reported		...	...	...	5,473	Details not reported		19,253	1,792	13,029
Bombay "	12,281	Ditto		1,631	Details not reported		...	...	...	14,912	2,589	5,582
Grand Total	81,414	...	...	8,845	...	...	29,512	...	...	119,771	33,738	28,146½

(a) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce on unoccupied land generally. The area of these unremarcated lands to which protection is afforded is not known.

The following table shows the number of cattle of the various kinds grazing during the year in Government forests, at full and at privileged rates, as well as those grazing free of dues. The number of cattle grazing at full rates and at privileged rates fell off considerably, due it is thought to great mortality amongst the cattle owing to scarcity of fodder:—

The following table shows, so far as the information is available, the incidence of grazing in open forests :—

Province.	Circle.	Grazed on payment. Number of animals. At full rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Grazed free. Number of animals. By right under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	During pleasure of Government, or otherwise than under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	7,553	17,634	3,582	...	22	15,713	178,145	12,515	...	538	48,941	152,035	49,041	...	...	67	277	110	...	5
N.-W. P. and Oudh.	Central	22,569	68,389	2,454	31	1,019	6,154	3,076	55,585	...	146	16,196	75,981	11,596	...	545	2,868	12,172	60	...	13
	Oudh	17,495	60,624	4,338	...	40	17,644	91,148	1,324	...	32	2,831	18,015	...	...	...	1,226	3,873	524	...	55
	School	7,705	32,388	10,842	2,599	5,869	1,206	8,485	123	...	...	181	12,238	47,932	...	...	...	1,398	...	...	...
	Total	47,769	161,331	17,634	2,630	6,928	25,004	102,709	57,032	...	178	19,208	106,234	59,528	...	545	4,094	17,443	584	...	68
Punjab	...	38,988	115,095	419,885	5,580	1,699	2,216	13,399	214,718	84	66	145,620	624,601	567,280	265	10,181	2,143	8,318	63	...	35
Burma (Lower)	Pegu	667	1,345	...	...	1	...	...	...	...	...	245	1,520	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	3,334	232	36	...	5	...	...	...	...	...
	Total	667	1,345	...	...	1	...	...	...	...	...	3,579	1,752	36	...	5	...	...	...	...	...
Burma (Upper)	Eastern	55	370	1	...	22	...	...	...	...	...	...	10,321	...	...	...	4,499	...	...	...	593
	Western	40	...	...	...	...	...	...	...	...	...	...	7,913	...	...	...	...	...	...	...	...
	Total	95	370	1	...	22	...	...	...	...	...	...	18,234	...	...	...	4,499	...	...	...	593
Central Provinces.	Northern	119,866	604,782	42,427	6	971	668	2,775	567	...	31	...	...	...	...	...	17,050	63,994	2,111	...	...
	Southern	109,799	902,444	168,137	...	190	5	117	1	...	62	...	...	...	...	...	10,878	98,816	3,649	...	128
	Total	229,665	1,507,226	210,564	6	1,161	673	2,892	568	...	93	...	...	..	...	..	27,928	162,810	5,760	...	128
Assam	...	21,072	11,377	2,069	...	85	...	...	...	...	...	...	...	...	...	...	54,214	137,033	9,952	...	205
Coorg	...	463	5,075	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	4,613	...	...	...
Ajmer	...	300	9,462	209	48	1,486	868	6,314	...	...	...	616	2,269	...	...	...	304	1,583	...	...	...
Baluchistan	...	...	986	1,144	...	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	...	91,198	515,627	245,290	46	1,773	2,862	30,063	11,510	...	23	495	90,704	1,003	...	44	100	4,060	...	...	...
	Total Bengal Presidency.	437,770	2,345,582	930,378	8,310	13,177	47,336	333,522	296,343	84	898	218,459	998,330	693,540	266	10,999	93,349	336,137	16,469	...	1,034
Madras Presidency:	Northern / Central / Southern		Information not available.																		
	Total	...	...	...	...	....	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay Presidency.	Northern	1,782	9,484	...	...	...	780	5,748	...	...	...	3,040	7,905	...	...	...	58,425	303,449	3,077	...	...
	Central	4,154	51,167	295,562	...	14,946	23,773	155,182	91,511	2	2,672	...	...	...	...	...	47,630	332,059	4,456	...	805
	Southern	5,590	13,240	49,650	...	21	81,187	225,259	58,678	...	2	...	...	...	...	...	36,037	124,901	...	...	...
	Sindh	51,617	64,132	313,195	10,014	460	11,185	28,396	38,524	681	84	4,671	19,442	...	...	609	191	929	913	104	1,020
	Total	63,143	138,023	658,407	10,014	15,427	116,925	414,585	188,713	683	2,758	7,711	27,347	...	...	609	142,283	761,338	8,446	104	1,825

In the following table the amount of revenue realized from grazing dues is contrasted with that foregone on account of free grazing allowed by right or privilege. The value of free grazing remained much the same as in the previous year. But the amount realized from grazing fees fell off by more than a lakh of rupees, the decrease occurring almost entirely in Bombay, particularly in the Central Circle.

Province.	Circle.	Amount realized.	Amount foregone.
		R	R
Bengal	...	22,142	93,100
North-Western Provinces and Oudh	Central	20,353	30,200
	Oudh	35,057	17,600
	School	15,565	7,900
	TOTAL	70,975	55,700
Punjab	...	86,126	2,33,700
Lower Burma	Pegu	1,071	700
	Tenasserim	...	3,200
	TOTAL	1,071	3,900
Upper Burma	Eastern	473	9,600
	Western	20	1,500
	TOTAL	493	11,100
Central Provinces	Northern	1,51,149	15,200
	Southern	1,54,679	15,800
	TOTAL	3,05,828	31,000
Assam	...	14,483	63,900
Coorg	...	2,005	...
Ajmer	...	1,030	1,400
Baluchistan	...	267	9,900
Andamans	...	...	...
Berar	...	1,77,335	30,200
Total Bengal Presidency	...	6,81,755	5,33,900
Madras Presidency	Northern	1,10,480	1,200
	Central	1,77,021	300
	Southern	76,404	600
	TOTAL	3,63,905	1,900
Bombay Presidency	Northern	6,355	3,13,000
	Central	1,42,579	2,71,800
	Southern	80,960	3,04,700
	Sindh	53,085	36,000
	TOTAL	2,82,979	9,25,500
GRAND TOTAL	...	13,28,639	14,61,300

IV.—Reproduction and Sylviculture.

The following tables show the increase in the areas of plantations, the money spent thereon in the various provinces, and the expenditure on cultural operations:—

Province.	Area, in acres.											
	At commencement of the year.			Added during the year.			Excluded during the year.			Balance at the close of the year.		
	Regular Plantations.	Taungyas.	Total.	Regular Plantations.	Taungyas.	Total.	Regular plantations.	Taungyas.	Total.	Regular Plantations.	Taungyas.	Total.
Bengal	3,178	...	3,178	3	...	3	309	...	309	2,872	...	2,872
N.-W. P. and Oudh	3,119	...	3,119	...	...	...	...	...	...	3,119	...	3,119
Punjab	696	...	696	140	...	140	140	...	140	696	...	696
Burma (Lower)	3,536	47,154	50,690	...	3,789	3,789	...	...	...	3,536	50,943	54,479
Burma (Upper)	249	855	1,104	19	309	328	136	18	154	132	1,146	1,278
Central Provinces	...	...	...	...	...	...	...	...	...	...	...	...
Assam	2,034	...	2,034	41	...	41	...	...	...	2,075	...	2,075
Coorg	2,115	(a)267	2,382	99½	129	228½	...	...	...	2,214½	396	2,610½
Ajmer	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	22	...	22	3	...	3	...	...	...	25	...	25
Andamans	87	...	87	98	...	98	...	...	...	185	...	185
Total	15,036	48,276	63,312	403½	4,227	4,630½	585	18	603	14,854½	52,485	67,339½
Berar	655	...	655	...	...	...	...	...	...	655	...	655
Total Bengal Presidency	15,691	48,276	63,967	403½	4,227	4,630½	585	18	603	15,509½	52,485	67,994½
Madras	33,863	...	33,863	2,446	...	2,446	4,083	...	4,083	32,226	...	(b)32,226
Bombay	11,407	...	11,407	1,333	...	1,333	768	...	768	11,972	...	11,972
GRAND TOTAL	60,961	48,276	109,237	4,182½	4,272	8,409½	5,436	18	5,454	59,707½	52,485	112,192½

(a) Erroneously shown as 396 in the Report for 1896-97.
(b) Includes 12,424 acres of Topes.

	R		R
Bengal	215	Coorg	2,440
N.-W. P. and Oudh	1,877	Ajmer	...
Punjab	879	Baluchistan	41
Lower Burma	80,913	Andamans	62
Upper Burma	5,172	Berar	...
Central Provinces	...	Madras	25,145
Assam	6,899	Bombay	6,393

Total R1,31,036

	R		R
Bengal	10,973	Coorg	822
N.-W. P. and Oudh	4,728	Ajmer	917
Punjab	3,140	Baluchistan	9
Lower Burma	6,197	Andamans	101
Upper Burma	1,432	Berar	1,234
Central Provinces	202	Madras	9,853
Assam	153	Bombay	15,714

Total R55,475

CHAPTER III.

Working and Outturn.

The total outturn of all forests under the control of the Forest Department in timber and fuel, bamboos and minor forest produce, with the average outturn per square mile, is exhibited in the following table:—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			Average outturn per square mile. Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	16,751,142 (a)	3,765,297	1,13,486	17,966,329 (c)	4,122,069	4,54,384	316,360 (c)	6,039,926	7,026	2,849	1,491	19	5,192	1,191	44	78	1,720	2
North-Western Provinces and Oudh.	9,458,691	3,592,757	2,10,826	1,833,545	152,415	14,704	25,400	19,375	1,896	2,456	2,231	55	29,506	1,621	156	591	45	43
Punjab	4,909,083	683,901	1,86,687	16,631,934	117,655	3,30,122	10,853,020	41,339	1,35,691	2,119	301	72	5,607	39	110	5,074	19	62
Burma (Lower)	3,966,312	5,632,652	13,582	...	...	...	16,724,297	21,247,880	27,835	291	831	2	...	...	...	(b)	(b)	(b)
Burma (Upper)	3,638,239	3,992,057	78,770	...	...	...	30,707,973	126,222,600	2,66,307	1,223	562	21	...	...	...	(b)	(b)	(b)
Central Provinces	14,609,461	11,585,464	1,89,529	...	...	...	11,805 (c)	880	1,471	739	759	25	...	...	...	41	3	5
Assam	1,355,450	4,973,891	41,295	...	...	...	15,351,892	29,560,586	3,37,588	377	549	3	...	...	...	979	1,287	21
Coorg	221,786	185,256	4,480	158,022	16,178	13,809	...	...	...	532	778	18	212 (c)	22	21 (c)	...	...	...
Ajmer	442,878	19,258	17,771	505	...	97	1,760	719	1,110	3,185	138	344	4	...	1	176 (d)	75	110 (d)
Baluchistan	17,107	...	11,262	...	...	...	360,430	...	3	100	...	06	...	...	...	120,143	...	1
Andamans	940,773	441,122	223 (h)	...	...	...	315,169	567,568	3,990	482	72	...	...	...	...	417	291	2
Berar	1,500,918	1,933,731	2,31,776	...	...	...	...	...	...	359	464	56	...	...	...	...	...	...
Madras (e)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (f)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Excludes removals by purchasers from lands leased out for cultivation in the Sundarbans, and removals as drift from the Gandak river.
(b) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands, to which protection is afforded, is not known.
(c) Outturn per acre.
(d) Outturn per acre.
(e) The forests of the Madras Presidency yielded 14,541,221 cubic feet of timber and fuel, 29,317,049 bamboos, and R9,88,903 worth of minor produce. Dividing these figures by the 19,255 square miles of forests under the control of the Madras Forest Department, the average outturn per square mile was 755 cubic feet of timber and fuel, 1,522 bamboos, and R51 worth of minor produce.
(f) The forests of the Bombay Presidency yielded 45,581,182 cubic feet of timber and fuel, 8,304,714 bamboos, and R13,27,373 worth of minor produce. Dividing these figures by the 14,912 square miles of forests under the control of the Bombay Forest Department, the average outturn per square mile was 3,650 cubic feet of timber and fuel, 557 bamboos, and R89 worth of minor produce.
(g) Excludes outturn from lands given out for cultivation, estimated at 3,330,267 cubic feet, as against 1,224,211 cubic feet in 1896-97.
(h) Excludes R3,09,836, as against R1,61,349 in 1896-97, estimated value of grass and grazing under concessions.

The amounts of forest produce removed by Government agency, contrasted with the amounts removed by purchasers, were as follows:—

Province.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	150,829	4,521,156	122,392	14,220,015	14,628	15,040,434	87	1,41,569
North-Western Provinces and Oudh.	642,364	2,367,876	1,506,649	2,981,285	223,846	8,258,722	13,803	1,40,620
Punjab	1,125,134	609,208	2,685,693	985,781	695,475	153,021	1,119	2,96,219
Burma (Lower)	2,004,194	8,793,690	...	7,752,123	...	26,516,647	4,801	32,028
Burma (Upper)	1,281,209	16,257,734	...	4,2[illegible]2,894	...	20,716,559	2,491	1,43,154
Central Provinces	284,479	1,460,395	859,907	10,008,865	56,125	13,496,625	6,197	4,20,449
Assam	77,055	5,429,008	19,335	5,346,142	1,216	18,281,636	2,232	54,687
Coorg	96,923	158,049	...	112,995	...	190,034	2,300	14,516
Ajmer	224	4,789	1,924	430,814	1,700	18,307	720	3,755
Baluchistan	1,170	8,804	10,654	364,819	...	...	...	1,184
Andamans	268,006	9,197	939,662	6,430	...	94,000	2,632	892
Berar	...	352,938	...	1,144,160	...	1,931,731	...	2,40,894
Total Bengal Presidency	5,921,587	39,903,441	6,146,216	47,626,126	992,989	104,757,713	36,382	14,89,967
Madras	412,899	2,142,931	2,086,473	9,573,202	258,738	28,833,424	50,921	9,05,882
Bombay	1,212,821	2,991,275	6,256,377	17,414,452	143,481	5,856,185	1,48,541	4,70,762
Grand Total	7,545,807	45,037,650	14,489,066	74,613,780	1,395,208	139,447,322	2,35,844	28,66,561

These figures compare with those of the previous year as follows :—

Agency by which produce was removed.	Timber.		Fuel.		Bamboos.		Minor-produce (including grass and grazing).	
	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government . . .	7,545,807	7,449,433	14,489,066	13,962,489	1,395,208	910,909	2,35,844	2,29,781
Purchasers . . .	45,037,650	39,577,542	74,643,780	85,875,357	139,447,322	133,979,895	28,66,561	29,87,069
TOTAL .	52,583,457	47,026,975	89,132,846	99,837,846	140,842 530	134,890,804	31,02,405	32,16,850

The total amount of timber exported rose by 5,556,000 cubic feet, the increase being entirely due to increased removals by purchasers, more particularly in Upper Burma, where the approaching termination of the lease of the Pyinmana forest caused increased efforts to extract as much timber as possible before the hitherto existing favourable terms are modified. The total outturn of timber exported reached the large figure of 52,583,000 cubic feet, of which more than half came from the forests of Burma. The amount of teak extracted from the Burma forests was 318,620 tons, equal to 15,931,000 cubic feet. Under fuel there was a falling off of nearly 11,000,000 cubic feet, occurring entirely under removals by purchasers. In the Bombay Presidency unfavourable conditions caused a falling off under this head of 8,000,000 cubic feet, whilst in the Central Provinces there was a falling off of more than 3,000,000 cubic feet in the amount of fuel removed by purchasers. The numbers of bamboos removed from the forests amounted to 140,842,000, an increase over the previous year of 6,000,000. Most of these bamboos were removed by purchasers, the largest yield coming from Madras, Burma, Assam, Bengal and the Central Provinces. Under minor forest-produce, including grass and grazing, there was a decrease in value of nearly a lakh of rupees, chiefly due to the unfavourable conditions existing in Bombay.

The details in the various provinces are shown below :—

Bengal.—The following statement gives details of the forest outturn of the year :—

Class of forest and agency by which produce was removed.	Timber.	Fuel.	Total wood.	Bamboos.	Minor-produce.
Reserved.	C. ft.	C. ft.	C. ft.	No.	R
Government	113,540	121,544	235,084	4,282	80
Purchasers	3,837,852	11,327,250	15,165,102	7,989,265	1,08,545
Free grantees	1,301	21,673	22,974	1,350	960
Right-holders	.....	1,327,988	1,327,988	770,400	8,601
TOTAL .	3,952,693	12,798,455	16,751,148	8,765,297	1,18,186
Protected.					
Government	16,151	843	16,994	40	7
Purchasers	434,825	2,846,027	3,280,852	121,549	30,938
Free-grantees	2,457	876	3,333	500	15
Right-holders	229,103	14,436,047	14,665,150	4,000,000	1,23,374
TOTAL .	682,536	17,283,793	17,966,329	4,122,089	1,54,384
Unclassed.					
Government	21,138	5	21,143	10,306	.....
Purchasers	248,479	46,738	295,217	6,929,620	7,036
Free-grantees	.....	.....	.....	.....	.....
Right-holders	.....	.....	.....	.....	.....
TOTAL .	269,617	46,743	316,360	6,939,926	7,036
GRAND TOTAL IN 1897-98 .	4,904,816	30,128,991	35,033,837	19,827,312	2,74,606
GRAND TOTAL IN 1896-97 .	5,396,702	30,277,688	35,674,390	18,160,514	2,52,421
Difference in 1897-98 . . .	—491,856	—148,697	—640,553	+1,666,798	+22,185

In his Resolution on the Report the Lieutenant-Governor remarks—

"The total outturn of timber and fuel was 35,033,837 cubic feet, showing a decrease of 640,553 on the outturn of the previous year. The decrease is explained by the closing of the operations in the Singhbhum district for the supply of sleepers to the Rai Bareli-Benares Railway, the supply during the year being only 94,102 cubic feet as against 538,767 in the previous year, and also by the fact that the figures of the previous year included the standing produce, about 122,000 cubic feet, of 500 acres of land which were sold to a tea-planter. Such fluctuations will always occur with the varying demands which Railway undertakings make upon the forests. There was an increase of 1,666,798 in the yield of bamboos, while the value of grazing, fodder, etc., rose by R22,185. The decline in the demand for fuel in the Chittagong Division is ascribed to the cyclone having blown down many trees, thereby placing a large quantity of fuel in the hands of the villagers. The reduction in the amount of fuel supplied by departmental agency to the troops at Darjeeling is due to reduction in their numbers. The want of means of carriage for timber is ascribed as the cause of the decrease in the amount removed by purchasers and, as before remarked, this is a subject regarding which a separate report should be submitted. Though there was some increase in the quantity removed from the Sundarbans, the late famine is said to have again affected the demand."

North-Western Provinces and Oudh.—The following table exhibits the total outturn of the forests in timber, fuel, and minor forest-produce, and the agency by which removed :—

Circle.	TIMBER REMOVED BY—								
	Government agency and purchasers.			Right-holders and free-grantees.			Total.		
	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Central	956,534	995,857	—677	213,658	279,345	+65,687	1,170,192	1,235,202	+65,010
Oudh	1,358,118	1,281,394	—76,724	449,674	444,623	—5,051	1,807,792	1,726,017	—81,775
School	1,039,323	762,989	—276,334	96,039	102,873	+6,834	1,135,362	865,862	—269,500
Total	3,353,975	3,000,240	—353,735	759,371	826,841	+67,470	4,113,346	3,827,081	—286,265

Circle.	FUEL REMOVED BY—															
	Government agency and purchasers.						Right-holders and free-grantees.						Total.			
	1896-97.		1897-98.		Difference in 1897-98.		1896-97.		1897-98.		Difference in 1897-98.		1896-97.		1897-98.		Difference in 1897-98.	
	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R	C. ft.	Value. R
Central	1,001,500	73,482	934,655	70,105	—66,845	—3,377	2,200,520	30,969	2,399,270	36,197	+198,750	+5,228	3,202,020	1,04,451	3,333,925	1,06,302	+131,905	+1,851
Oudh	2,052,867	75,609	2,828,629	77,571	+775,762	+1,962	67,531	971	118,497	1,810	+50,966	+869	2,120,398	76,580	2,947,126	79,411	+826,728	+2,831
School	779,104	51,934	724,650	37,095	—54,454	—14,839	483,631	6,749	484,761	7,892	+1,133	+1,053	1,262,735	58,683	1,209,414	44,897	—53,321	—13,786
Total	3,833,471	2,01,025	4,487,934	1,84,771	+654,463	—16,254	2,751,682	38,689	3,002,531	45,339	+250,849	+7,150	6,585,153	2,39,714	7,490,465	2,30,610	+905,312	—9,104

Circle.	MINOR FOREST-PRODUCE (INCLUDING BAMBOOS, GRASS, AND GRAZING) REMOVED BY—								
	Government and purchasers.			Right-holders and free-grantees.			Total.		
	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.	1896-97.	1897-98.	Difference in 1897-98.
	Value. R	Value. R	Value. R	Value. R	Value. R	Value. R	Value. R	Value. R	Value. R
Central	1,15,694	1,00,693	—15,001	62,862	43,113	—19,749	1,78,556	1,43,806	—34,750
Oudh	68,091	61,322	—6,769	25,301	20,284	—5,017	93,392	81,606	—11,786
School	45,356	48,479	+3,123	12,970	10,467	—2,503	58,326	58,946	+620
Total	2,29,141	2,10,494	—18,647	1,01,133	73,864	—27,269	3,30,274	2,84,358	—45,916

The Government of India remark—

"There was a large falling off in the outturn of timber removed by Government agency and purchasers, amounting to nearly 384,000 cubic feet. The chief falling off being in the School Circle, where owing to slackness of trade, caused, it is thought, by famine and plague, the amount of timber removed by purchasers was 376,000 cubic feet less than in the previous year. There was a large increase in the outturn of firewood, chiefly due to increased grants to right-holders; whilst the value of minor forest-produce removed for sale, as well as that removed by right-holders, shows a considerable falling off."

Punjab.—The following statement gives a summary of the produce removed from the forests during the year under report, as compared with the figures of the previous year:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft. solid.	Nos.	₹	₹
Government	1,125,134	2,685,693	695,475	195	924
Purchasers	609,908	985,784	153,021	2,83,434	12,785
Free-grantees	6,798	52,133	...	2,006	36
Right-holders	1,186,017	25,992,170	...	2,82,036	51,397
Total for 1897-98 .	2,927,857	29,715,780	848,496	5,67,671	65,142
Total for 1896-97 .	2,319,721	29,209,277	567,584	4,33,183	54,620

In their review of the year's work, the Government of India observe:—

"The total outturn of timber amounted to 2,927,857 cubic feet, against 2,319,721 in the previous year. Of this amount, 1,125,134 cubic feet of timber were removed by Government agency and 609,908 cubic feet by purchasers. This shows a considerable increase in timber removed by the Department, but the report is silent as to how much of these amounts consisted of deodar timber and how much of timber of other pines. From paragraph 39 of the report, however, it appears that 9,804 deodar trees and 629 pines and other trees were extracted by Government agency during the year, as against 9,564 deodars and 759 pines in the previous year; so that the trade in trees other than deodar is not increasing. Nor is it probable that it will do so, until some means of rendering the wood of the various pines more durable and more fitted for railway sleepers become a practical possibility. The Conservator should be asked to consider the question and to bring it forward in his next report.

The statistics which are being collected regarding the loss in volume resulting from conversion and transport are useful, and should enable the Department to definitely decide which *is* the most economical way of putting its timber on the market."

Burma.—The following tables, abstracted from the Local Government's review, fully analyse the outturn of the year and compare it with that of the previous year:—

Class of forest and agency by which produce was removed.	TIMBER.						FUEL.						TOTAL TIMBER AND FUEL.		
	LOWER BURMA.			UPPER BURMA.			LOWER BURMA.			UPPER BURMA.			Lower Burma.	Upper Burma.	Total.
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.			
RESERVED.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government . . .	1,166,174	149,916	1,316,090	515,461	34,418	549,879	...	...	...	...	...	...	1,316,090	549,879	1,865,969
Purchasers . . .	218,320	426,136	644,456	6,739,342	230,991	6,970,333	2,926	...	2,926	497,800	...	497,800	647,382	7,468,133	8,115,515
Free-grantees . . .	835	...	835	1,525	600	2,125	...	...	...	...	...	...	835	2,125	2,960
Right-holders . . .	...	1,370	1,370	12,124	238,965	251,089	...	635	635	376,054	40,959	417,013	2,005	668,102	670,107
Total .	1,385,329	577,422	1,962,751	7,268,452	504,974	7,773,426	2,926	635	3,561	873,854	40,959	914,813	1,966,312	8,688,239	10,654,551
UNCLASSED. (*Afforded protection under Chapter IV of the Act and of the Regulation.*)															
Government . . .	292,332	395,772	688,104	657,274	74,056	731,330	...	...	...	...	...	...	688,104	731,330	1,419,434
Purchasers . . .	4,369,964	3,689,170	8,059,134	5,463,380	3,864,021	9,317,401	4,507,933	3,241,269	7,749,197	3,296,717	488,177	3,784,894	15,808,331	13,102,295	28,910,626
Free-grantees . . .	156,768	12,715	169,483	66,978	3,139,020	3,205,998	8,569	...	8,569	...	13,668,350	13,668,350	178,052	16,874,348	17,052,400
Right-holders . . .	...	49,810	49,810	...	...	...	...	...	...	...	...	...	49,810	...	49,810
Total .	4,819,064	4,147,467	8,966,531	6,177,632	7,077,097	13,254,729	4,516,507	3,241,269	7,757,766	3,296,717	14,156,527	17,453,244	16,724,297	30,707,973	47,432,270
GRAND TOTAL IN 1897-98	6,204,393	4,724,889	10,929,282	13,446,084	7,582,071	21,028,155	4,519,433	3,241,894	7,761,327	4,170,571	14,197,486	18,368,057	18,690,609	39,396,212	58,086,821
GRAND TOTAL IN 1896-97	6,502,081	4,378,080	10,880,161	10,186,950	3,125,281	13,312,231	6,116,749	1,841,495	7,958,244	3,249,439	679,113	3,928,552	18,838,405	17,240,783	36,079,188
Difference in 1897-98 .	—297,688	+346,809	+49,121	+3,259,134	+4,456,790	+7,715,924	—1,597,316	+1,400,399	—196,917	+921,132	+13,518,373	+14,439,505	—147,796	+22,155,429	+22,007,633

MINOR FOREST-PRODUCE.

Class of forests, and agency by which produce was removed.	Bamboos.						Grass and Grazing.						Other Minor-Produce.					
	Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.			Lower Burma.			Upper Burma.		
	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.	Pegu Circle.	Tenasserim Circle.	Total.	Eastern Circle.	Western Circle.	Total.
Reserved.	No.	No.	No.	No.	No.	No.	R	R	R	R	R	R	R	R	R	R	R	R
Government	...	...	...	...	...	...	...	...	...	...	...	...	4,801	...	4,801	4	...	4
Purchasers	4,666,000	610,767	5,276,767	363,425	540,050	1 403,475	1,071	...	1,071	473	20	493	1,147	1,975	3,122	1,864	3,116	4,480
Free-grantees	...	...	...	...	4,000	4,000	...	...	...	7,055	...	7,055	...	...	...	...	...	...
Right-holders	101,000	254,865	355,865	643,160	1,942,032	2,585,192	718	3,243	3,961	2,580	1,472	4,052	394	233	627	1,825	861	2,686
Total	(a) 4,767,000	(b) 865,632	(c) 5,632,632	(d) 1,506,585	(e) 2,486,082	(f) 3,992,667	1,789	3,243	5,032	10,108	1,492	11,600	6,342	2,208	8,550	3,193	3,977	7,170
Unclassed. (*Afforded protection under Chapter IV of the Act and of the Regulation.*)																		
Government	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,487	2,487
Purchasers	17,937,000	3,302,880	21,239,880	9,257,457	10,115,627	19,373,084	...	...	...	...	...	...	10,480	17,355	27,835	92,978	45,203	1,38,181
Free-grantees	8,000	...	8,000	24,366	106,824,550	106,848,916	...	...	...	...	1,08,600	1,08,600	...	...	...	7	27,032	27,039
Right-holders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	(g) 17,945,000	(h) 3,302,880	(i) 21,247,880	(j) 9,281,823	(k) 116,940,177	(l) 126,222,000	...	...	...	...	1,08,600	1,08,600	10,480	17,355	27,835	92,985	74,722	1,67,707
Grand Total in 1897-98	(m) 22,712,000	(n) 4,168,512	(o) 26,880,512	(p) 10,788,408	(q) 119,426,259	(r) 130,214,667	1,789	3,243	5,032	10,108	1,10,092	1,20,200	16,822	19,563	36,385	96,178	78,699	1,74,877
Grand Total in 1896-97	(s) 18,820,000	(t) 3,063,255	(u) 21,883,255	(v) 7,872,363	(w) 7,564,226	(x) 15,437,089	1,580	3,405	4,985	9,486	14,422	23,908	16,611	16,509	33,120	88,903	1,36,903	2,25,806
Difference in 1896-97	+ 3,892,000	+ 1,105,257	+ 4,997,257	+ 2,915,545	+ 111,862,033	+ 114,777,578	+ 209	— 162	+ 47	+ 622	+ 95,670	+ 96,292	+ 211	+ 3,054	+ 3,265	+ 7,275	— 58,204	— 50,929

	R		R		R		R
(a) Value	11,839	(g) Value	43,020	(m) Value	54,859	(s) Value	41,022
(b) ,,	2,290	(h) ,,	8,531	(n) ,,	10,821	(t) ,,	7,753
(c) ,,	14,129	(i) ,,	51,551	(o) ,,	65,680	(u) ,,	48,780
(d) ,,	4,031	(j) ,,	25,407	(p) ,,	29,438	(v) ,,	21,626
(e) ,,	8,243	(k) ,,	1,61,854	(q) ,,	1,65,497	(w) ,,	17,345
(f) ,,	7,674	(l) ,,	1,87,261	(r) ,,	1,94,935	(x) ,,	38,971

The Government of India record the following remarks :—

"The outturn of timber of all kinds aggregated 639,155 tons, or 155,301 tons more than in the previous year. Lessees extracted in all 257,517 tons of teak from the different forests, of which no less than 156,308 tons were yielded by the Pyinmana forests. The extraction of 61,103 tons of teak was effected by Government agency through small contractors. It is noticed that while the exports of teak from Burma have increased, the demand has been maintained, and prices have advanced. There was a considerable falling off in the outturn of cutch, the trade in which, it is observed, is expected to revive."

Central Provinces.—The following table compares the operations of the last two years; it shows, in thousands of cubic feet, the amount of timber and fuel removed :—

Southern Circle.

	1896-97.	1897-98.	+or—
Departmentally	936	776	—160
By purchasers	6,444	7,142	+698
„ free grants	1,145	465	—680
Total	8,525	8,383	—142

Northern Circle.

Departmentally	219	368	+149
By purchasers	3,176	4,328	+1,152
„ free grants	3,260	1,136	—2,124
Total	6,655	5,832	—823

The Chief Commissioner in his Resolution remarks—

"In the Southern Circle the departmental fellings have increased in six divisions and decreased in three. One of these three is Bhandara, where the decrease is due to certain removals—*in reality* departmental—having been arranged for by the agency of a contractor, which brings them nominally under the second of the above groups. The other two divisions in which there is a decrease under this head are Nagpur-Wardha and Raipur. In the former of these the decrease is due to causes connected with the staff which should not be allowed to recur, while in Raipur the decrease is largely under "Fuel," and is attributed by the Forest Divisional Officer to the continued poverty of the raiyats, an explanation which the Conservator is, however, not inclined to endorse. For the rest, the figures show an increase in removals (except by free grants), which is due to returning prosperity, and is satisfactory."

Assam.—The gross outturn of the year, as compared with that of the previous year, is thus tabulated by the Conservator :—

Class of forest and agency of exploitation.	1896-97.									1897-98.								
	Rough logs.		Rough poles.	Sawn timber.	Miscellaneous.	Fuel.		Total.		Rough logs.		Rough poles.	Sawn timber.	Miscellaneous.	Fuel.		Total.	
	Traders.	Waste lands leased.				Traders.	Waste lands leased.	Traders.	Waste lands leased.	Traders.	Waste lands leased.				Traders.	Waste lands leased.	Traders.	Waste lands leased.
From Reserved forests.	733,209	...	188,691	26,339	400	433,475	...	1,382,114	...	669,406	...	412,037	23,528	1,585	248,894	...	1,355,450	...
„ Unclassed forests.	1,193,634	759,991	2,044,214	268,822	87	10,418,073	464,220	13,924,830	1,224,211	1,158,208	2,197,683	3,852,247	263,375	72	10,087,990	1,132,574	15,361,892	3,330,257
Total, outturn	1,926,843	759,991	2,232,905	295,161	487	10,851,548	464,220	15,306,944	1,224,211	1,827,614	2,197,683	4,264,284	286,903	1,657	10,336,884	1,132,574	16,717,342	3,330,257
By Government agency.	20,157	...	1,723	1,590	14	18,281	...	41,763	...	65,751	...	4,355	6,712	237	19,335	...	96,390	...
„ purchasers	1,397,911	759,991	2,086,990	293,571	473	5,758,701	464,220	9,537,546	1,224,211	1,254,060	435,263	3,894,137	280,191	620	5,346,142	412,820	10,775,150	843,068
„ right-holders.	...	...	...	...	...	...	...	...	...	200	...	...	...	...	...	...	200	...
free-grants	508,775	...	144,292	...	...	5,074,563	...	5,727,630	...	507,603	1,762,415	365,792	...	800	4,971,407	719,754	5,845,602	2,487,189
Total outturn cubic feet solid.	1,926,843	759,991	2,232,905	295,161	487	10,851,548	464,220	15,306,944	1,224,211	1,827,614	2,197,683	4,264,284	286,903	1,657	10,336,884	1,132,574	16,717,342	3,330,257

Under timber and fuel worked out by departmental agency, there was an increase of 54,000 cubic feet, chiefly in the Sylhet Division, owing to the amount of drift washed down by floods after the earthquake. Timber and fuel removed by purchasers increased by 1,258,000 cubic feet, but that from waste-land grants fell off by 376,000 cubic feet. The increase is chiefly due to a more correct calculation of the amount of poles and firewood removed under *gurkati* licenses in the Garo Hills. The outturn of home rubber decreased considerably, falling from 1,222 maunds in the previous year to 761 maunds. The amount of foreign rubber also decreased by 740 maunds. The decrease is stated to be due to the gradual but steady destruction of trees by tappers, whose working in forests containing only scattered trees it is impossible to control.

Coorg.—The following statement summarizes the outturn of the year, and compares it with that of the previous year:—

Agency of work.	Timber, in c. ft.		Sandalwood, in tons.		Fuel, in c. ft.		Bamboos, in number.		Grass and grazing, value.		Other forest-produce, including cardamoms.	
	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.	1896-97.	1897-98.
									R	R	R	R
By Government	82,208	94,123	141	70	...	...	...	...	...	...	244	214
„ purchasers	2,44,583	1,53,049	...	...	1,71,225	112,995	2,29,631	1,90,031	...	...	898	593
„ villagers and others	...	...	...	...	...	...	...	...	2,154	2,200	6,995	13,809
Free grants	21,125	11,841	...	...	...	...	16,800	9,400	1,400	1,473	...	...

There are decreases under nearly all heads, but the receipts from cardamoms increased by some R7,000, owing to improved realizations from mahé lease-holders.

Ajmer.—The outturn of forest-produce is shown in the following summary by the Commissioner:—

"In the following table will be found figures showing, in abstract form, the extent to which cut grass and other forest-produce have been removed from the reserves during the last two years:—

Year.	Timber.	Fuel.	Bamboos.	Grass.	Minor-produce.
	C. ft.	C. ft.	No.	Mds.	R
1896-97	10,687	226,056	17,151	609,483	1,104
1897-98	4,768	428,894	17,558	710,137	1,156

Grazing and other minor-produce yielded an income of R4,125, against R4,178 in 1896-97."

The stock of famine insurance grass was increased, and at the close of the year stood at 21,000 maunds.

Baluchistan.—The outturn of timber and fuel for three years is given below:—

Description of forests.	Timber—poles and logs.			Firewood.		
	1895-96.	1896-97.	1897-98.	1895-96.	1896-97.	1897-98.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Reserved	679	271	7,046	3,202	4,097	10,061
Unclassed	2,162	1,365	5,018	443,336	387,640	355,412
Total	2,841	1,636	12,064	446,538	391,737	365,473

The outturn of minor forest-produce was as follows :—

Description of minor-produce.	1895-96.	1896-97.	1897-98.
	Mds.	Mds.	Mds.
Fodder grass	562	800	679
	R	R	R
„ „ cut on lease	*Nil*	100	175
Pasture (fees realised)	743	742	267
Tree plants	26	34	363
Fruit, flowers, etc.	74	76	179

Andamans.—The outturn compared with that of the previous year was as follows :—

	1896-97. C. ft.	1897-98. C. ft.
Timber—		
Removed by the Forest Department	218,171	258,006
„ „ purchasers	43,332	9,197
TOTAL	261,503	267,203
Poles, Bullies, etc.—		
Removed by district officers	24,524	41,608
„ on free grants	37,500	37,500
TOTAL	62,024	79,108
Fuel—		
Removed by the Forest Department	86,372	939,662
„ „ purchasers	4,856	6,430
„ „ district officers	1,458,778	133,479
„ „ free grants	330,000	330,000
TOTAL	1,879,906	1,409,571

One thousand six hundred and seventy-eight padouk trees were felled, yielding 3,055 logs, as against 1,236 trees and 2,429 logs in the year 1896-97 ; 258 tons of mill-sawn padouk were sent to London, and the sales of this wood in England amounted to 1,146 tons, the balance remaining in hand in London at the close of the year being 150 tons. A large quantity of gurjan oil was supplied to the Settlement, and the firewood supply was undertaken by the Forest Department, who delivered 18,000 tons during the year.

Berar.—The outturn of the year is shown and compared with that of the previous year in the following statement :—

Produce removed.	1896-97.	1897-98.	1897-98.	
			Increase.	Decrease.
Timber . . . . . c.ft.	503,439	362,938	...	150,501
Fuel . . . . . c.ft.	962,229	1,444,160	181,931	...
Bamboos . . . . . No., in 100's	22,808	19,317	...	3,491
Grass . . . . . value, in R	73,955	42,703	...	31,252
Grazing . . . . . value, in R	214,610	177,335	...	37,275
Miscellaneous (II-e.—Fruits, dye-stuff, lac ; III.—Waif-wood ; V.—Other sources) R	20,784	20,856	72	...
	241	304	63	...
	4,498	4,360	...	138
Gross revenue per square mile . . . . R	119	98	...	21
Net revenue per square mile . . . . „	58	41	...	17

The year was marked by a serious fall in the demand for timber, bamboos, grass and grazing, owing chiefly to the distress caused by the famine.

Madras.—The Madras Government remark—

"The following statement shows that the total yield of the forests during the year was somewhat less than in the previous year, except under the head of minor-produce :—

Year.	Timber, including sandalwood.	Fuel.	Bamboos.	Minor produce, gross value.
	C. ft.	C. ft.	No.	R
1896-97	2,642,276	12,182,192	30,846,684	9,42,739
1897-98	2,619,793	11,922,428	29,317,049	9,98,993
Increase or decrease in 1897-98 against 1896-97 .	− 22,483	− 259,764	− 1,529,635	+ 56,254
Percentage of the increase or decrease above mentioned	− ·85	− 2·13	− 4·96	+ 5·97

The decrease was chiefly due to restricted departmental operations in the collection of produce. The demand, on the other hand, as measured by the disposal of produce showed a substantial increase; the quantity removed by purchasers was more, except under bamboos, than in the previous year, the value being R16,17,729 against R15,53,365 last year; and the quantity disposed of by departmental agency was also greater, except under fuel, the value amounting to R4,78,301 as compared with R4,25,607 in the previous year."

Bombay.—The Bombay Government has compiled the following statement showing the outturn of timber and other forest produce :—

Circle.	Agency by which material was removed.	Material removed.					Average outturn per square mile of all Forests.		
		Timber.	Fuel.	Total Wood.	Bamboos.	Minor-produce.	Timber and Fuel.	Bamboos.	Minor-produce.
		C. ft.	C. ft.	C. ft.	No.	R	C. ft.	No.	R
Northern Circle.	Government .	133,948	368,071	507,019	1,031	...	...	...	...
	Purchasers .	1,842,207	3,306,974	5,148,181	2,528,571	6,881	...	...	...
	Free-grants .	15,147	...	15,147	3,291	...	...	...	...
	Right-holders .	...	2,216,396	2,216,396	1,809,290	8,261	...	...	...
	Total .	1,996,302	5,890,441	7,886,743	*4,336,183	15,142	†4,860	†2,671	†9
Central Circle .	Government .	255,029	2,457,062	2,712,091	...	10,207	...	...	...
	Purchasers .	217,383	578,507	795,895	753,539	13,042	...	...	...
	Free-grants .	15,159	33,004	48,163	1,100	...	...	...	...
	Right-holders .	...	4,080,380	4,080,380	1,973	11,815	...	...	...
	Total .	487,576	7,148,953	7,636,529	756,612	35,064	1,219	421	6
Southern Circle.	Government .	816,437	3,410,558	4,226,995	142,450	66,547	...	...	...
	Purchasers .	602,513	3,056,853	3,659,396	2,578,165	25,189	...	...	...
	Free-grants .	51,185	1,440	52,925	15,831	1,660	...	...	...
	Right-holders .	...	...	...	...	...	...	...	...
	Total .	‡1,470,465	6,468,851	7,939,316	2,736,496	93,396	1,501	517	18
Sindh Circle .	Government .	1,407	20,686	22,093	...	219	...	...	...
	Purchasers .	329,137	10,503,118	10,832,255	...	24,263	...	...	...
	Free-grants .	5,657	8,600	14,257	...	51	...	...	...
	Right-holders .	...	114,687	114,687	...	...	...	...	...
	Total .	336,201	10,647,091	10,983,292	...	24,533	10,371	...	22
All Circles combined.	Government .	1,211,821	6,256,377	7,468,198	143,481	76,973	...	...	...
	Purchasers .	2,991,275	17,444,452	20,435,727	5,856,275	69,375	...	...	...
	Free-grants .	87,448	43,044	130,492	18,272	1,711	...	...	...
	Right-holders .	...	6,411,463	6,411,463	1,811,263	20,076	...	...	...
	Grand Total for 1897-98.	4,290,544	30,155,336	34,445,880	7,829,291	1,68,135	2,420	550	1
	Grand Total for 1896-97.	5,136,562	37,783,776	42,920,338	6,354,888	1,97,409	2,993	443	14
	Difference in 1897-98.	−816,018	−7,628,440	−8,474,458	+1,474,403	−29,274	−573	+107	−3

* Besides 5,882 cart-loads and 5,673 head-loads of bamboos and 20,219 ganjas, 2,241 paranas and 446 pipes.

† These averages are per square mile of the total forest area of the Northern Circle, excluding the leased forests of the Dangs.

‡ Besides 31,095,302 cubic feet of timber and fuel, 475,513 bamboos, and minor-produce of the value of R16,604, removed under privileges.

The outturn of all kinds of produce, except bamboos, shows a further fall as compared with the year 1896-97, which was itself a bad year for forest operations. The plague continued to adversely affect trade in forest products.

CHAPTER IV.

Financial Results.

The gross revenue realized during the Financial year amounted to R1,77,95,490, a total which has only once been exceeded, *i.e.*, in 1896-97. The surplus amounted to R75,99,760, which is nearly 3 lakhs less than in the previous year, this result being due to the unfavourable conditions existing in Berar, Madras, and Bombay. There was a large increase in Burma, where approaching falling in of leases rendered lessees anxious to extract as much timber under the more favourable rates as possible. Of the total revenue, R72,00,000 were realized in Burma, of which R50,00,000 were net revenue.

The principal variations in revenue and surplus, as compared with the previous year, were—

	Revenue.	Surplus.
	R	R
Bengal	—1,81,000	—1,45,000
North-Western Provinces and Oudh	—58,000	—70,000
Punjab	—39,000	—88,000
Burma (Lower)	+2,68,000	+3,67,000
Burma (Upper)	+5,68,000	+4,01,000
Assam	—52,000	—68,000
Coorg	+38,000	+22,000
Andamans	+71,000	+1,41,000
Berar	—1,17,000	—1,20,000
Madras	—1,67,000	—2,05,000
Bombay	—4,16,000	—5,20,000

The following table gives the revenue and surplus in each province, compared with the average of the preceding five years, as well as the proportion of surplus to gross revenue, and the net revenue realized per square mile of forest :—

Province.	Revenue.		Surplus.		Deficit.		Proportion Surplus to gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1897-98.	Average for preceding 5 years.	1897-98.	Average for preceding 5 years.	1897-98.	Average for preceding 5 years.		
	R	R	R	R	R	R	Per cent.	R
Imperial	19,130	3,928	...	...	65,170	82,548	...	...
Bengal	11,39,280	9,26,344	5,36,840	4,58,514	...	...	45·0	40·1
North-Western Provinces and Oudh	13,36,670	16,13,362	4,68,820	6,77,948	...	...	33·8	117·5
Punjab	10,68,470	9,76,116	2,96,530	2,92,808	...	...	27·7	39·9
Burma (Lower)	40,36,200	35,15,948	26,82,090	24,27,148	...	...	65·6	363·8
Burma (Upper)	31,29,060	22,76,384	23,36,560	17,34,632	...	...	74·6	318·6
Central Provinces	7,80,050	10,28,844	...	96,248	1,41,390	...	...	...
Assam	3,84,920	4,33,578	95,990	1,59,088	...	...	24·9	4·9
Coorg	1,30,910	1,47,154	43,890	66,436	...	...	33·5	49·4
Ajmer	15,540	14,072	870	...	...	2,636	5·6	5·8
Baluchistan	15,040	17,290	...	...	12,290	29,070	...	...
Andamans	4,33,710	2,82,260	1,86,370	78,828	...	...	42·9	95·4
Forest School	2,690	2,783	...	...	58,030	60,664	...	...
Forest Surveys (Imperial)	220	350	...	...	33,730	28,014	...	..
Total	1,23,41,990	1,12,37,424	63,36,250	54,88,688	...	...	50·1	77·8
Berar	4,00,350	4,79,376	1,56,300	2,35,376	...	...	39·0	37·4
Total, Bengal Presidency	1,30,42,340	1,17,17,300	64,92,650	57,24,064	...	...	49·7	75·8
Madras	21,36,490	19,66,464	5,63,640	5,54,580	...	...	26·4	29·3
Bombay	26,16,660	24,76,662	5,43,470	14,82,186	...	...	20·7	36·4
Grand Total	1,77,95,490	1,71,60,426	75,99,760	77,60,830	...	...	42·7	63·4

The revenue and expenditure for the quinquennial periods since 1872-73 are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to gross Revenue.
	R	R	Per cent.
1872-73 to 1876-77	65,38,373	44,09,179	67
1877-78 to 1881-82	73,80,431	49,42,512	67
1882-83 to 1886-87	1,06,78,807	68,31,284	64
1887-88 to 1891-92	1,42,46,891	80,69,590	56
1892-93 to 1896-97	1,71,60,426	93,99,796	55

The estimated value of forest-produce given away free or at reduced rates to right-holders and free-grantees is shown in the following table :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	R	R	R	R	R	R
Bengal	11,300	1,10,700	7,100	29,900	89,800	2,48,800
North-Western Provinces and Oudh.	63,400	45,800	800	7,800	65,700	1,83,000
Punjab	35,600	3,29,900	...	54,400	2,84,000	7,53,900
Burma (Lower)	12,650	80	820	200	3,950	17,700
Burma (Upper)	1,01,500	25,800	1,40,800	28,500	1,19,700	4,16,300
Central Provinces . . .	5,400	9,300	7,900	24,200	39,900	86,600
Assam	2,27,100	95,900	8,800	2,30,900	64,000	6,26,700
Coorg	1,500	...	20	...	1,500	3,020
Ajmer	150	120	...	...	43,210	43,480
Baluchistan	300	...	...	200	9,900	10,400
Andamans	23,700	18,500	300	700	...	43,200
Berar	61,770	50,225	20,238	15,231	1,09,536	2,57,000
Madras	6,607	4,955	1,000	40,210	2,028	54,800
Bombay	21,000	1,70,800	4,200	37,400	5,11,900	7,45,300
TOTAL .	6,21,977	8,62,080	1,91,878	4,69,141	13,45,124	34,90,200

The total estimated value of forest-produce thus amounted to nearly 35 lakhs, *i.e.*, nearly 17 per cent. of the total outturn of the forests was utilized by the people free of charge.

The following statement shows the revenue and expenditure under the various heads, and the proportion of the gross receipts expended :—

				Amount.	
				R	
Gross Receipts	(a) Wood			1,37,39,530	
	(b) Minor forest-produce			12,04,160	
	(c) Forest stamps and commutation fees for forest produce			5,71,200	
	(d) Grass and Grazing			13,51 350	
	(e) Revenue from forests not managed by Government			3,52,410	
	(f) Miscellaneous			5,76,840	
			TOTAL REVENUE	1,77,95,490	
				Amount.	Proportion of Expenditure to gross Revenue.
				R	Per cent.
Expenditure	A. Recurring.	(a) Administration.	(i) Superior Staff	22,06,940	12·40
			(ii) Exchange compensation allowance.	1,27,140	0·71
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).	16,29,880	9·16
			(iv) Office Establishments (including Contingencies).	8,66,940	4·87
		(b) Working	(1) Extraction	29,06,920	16·34
			(2) Roads and Buildings	4,85,080	2·73
			(3) Fire-protection	3,13,600	1·76
			(4) Cultural operations	3,60,200	2·02
			(5) Live-stock, stores, tools and plant.	2,47,490	1·39
			(6) Working-plans*	72,920	0·41
			(7) Rent for leased forests	1,40,150	0·79
			(8) Miscellaneous	1 13,210	0·64
		(c) Expenditure on realization of revenue from forests not managed by Government.		10,400	0·06
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School).		71,930	0·40
			TOTAL	95,52,750	53·68
	B. Extraordinary.	(e) Forest Settlement		65,520	0·37
		(f) Forest Surveys		4,51,030	2·53
		(g) Forest Demarcation		1,26,430	0·71
			TOTAL	6,42,980	3·61
			GRAND TOTAL EXPENDITURE	1,01,95,730	57·29
			Net Revenue	75,99,760	42·71

* Exclusive of "B" charges.

The details of financial results in the various provinces were as follows; the figures are throughout those for the forest year, except where stated to the contrary :—

Bengal.—The following are the figures showing the financial results for the past six years :—

Receipts.	Charges.	Surplus.
R	R	R
7,70,817	3,90,426	3,80,391
7,73,096	3,98,389	3,74,707
8,25,669	4,09,552	4,16,117
9,35-680	4,75,601	4,60,079
13,45,982	6,96,378	6,49,604
12,20,617	6,55,251	5,65,366

The figures of the gross receipts and the surplus for the year were in excess of the corresponding figures for previous years, if those for 1896-97 be excepted, which was an unusually good year, on account of the receipts from departmental sleeper operations in Singhbhum. Sales of these sleepers to the Rai Bareli-Benares Railway yielded, during the year, R3,48,414, as compared with R4,92,937 of 1896-97, making a total for the 203,964 sleepers, taken by the Railway, of R8,41,351, while the sale of rejected sleepers during the two years gave R13,627 more.

The proportion of surplus to gross receipts was 46 per cent., as compared with 48 per cent. in 1896 97 and 49 per cent. of the previous year. The ratio of expenditure to gross revenue was thus 55 per cent., and the net revenue per square mile was R42.

North-Western Provinces and Oudh.—The Local Government remarks :—

	R	R
"The financial results of the year were—		
Receipts		14,46,388
Expenditure—		
A.—Conservancy and Works	5,23,590	
B.—Establishment	4,10,627	9,34,217
Surplus .		5,12,166

These figures compare, Circle by Circle, with the figures of 1896-97 and with the average of the three previous years, 1894-95 to 1896-97, as follows :—

Circle.	Receipts.			Expenditure.			Surplus.		
	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.	Average of three forest years, 1894-95 to 1896-97.	Forest year, 1896-97.	Forest year, 1897-98.
	R	R	R	R	R	R	R	R	R
Central . .	5,22,987	4,42,098	5,01,873	3,25,440	3,02,462	3,16,403	1,97,547	1,45,636	1,85,470
Oudh . .	5,29,582	4,80,589	4,74,656	2,92,708	2,64,194	2,72,510	2,36,874	2,16,395	2,02,146
School . .	4,30,715	4,56,722	4,69,854	3,03,731	3,06,397	3,46,304	1,26,984	1,50,325	1,23,550
Total for the Province.	14,83,284	13,86,409	14,46,383	9,21,879	8,74,053	9,34,217	5,61,405	5,12,356	5,12,166

Both receipts and expenditure show an increase over those of 1896-97, and more nearly approximate to the average of the preceding five years. The increased receipts indicate the passing away of the effects of the severe famine of 1896-97, and the recovery may be expected to be still more marked during the current year. In the Oudh Circle alone has any decrease in receipts occurred during the year, due to contraction of operations in Gonda, and in Bahraich to a reduced income from fuel and grazing and a smaller supply of available timber in the felling coupes. In the Central Circle receipts would have been higher but for the disturbance of trade in consequence of the plague scare.

Expenditure increased in the Central Circle by R12,941, in the Oudh Circle by R7,316, and in the School Circle by R39,907. In the last case the increase is due to the expansion of timber and export works in Jaunsar and to repairs to communications rendered necessary by heavy floods in August 1897. In the other two Circles, it is due in some measure to the reorganization of the subordinate establishment."

Punjab.—The financial results are summarized by the Local Government as follows :—

"The revenue and expenditure of the year were R11,57,983 and R7,81,494 respectively, the surplus thus being R3,76,489, as compared with R3,20,834 in the previous year. This improvement is more than accounted for by the transfer of the Shahpur rakhs from Civil to Forest Department management, in consequence of which that Division shows a surplus on the year's working of R59,828 as compared with a deficit of R2,881 in the previous year. Thus the increase in the Departmental revenue is obtained at the expense of land revenue, and but for this accession of income the financial results of the year would not be as favourable as in 1896-97 The expenditure amounted to 67 per cent. of gross revenue, as compared with 70 per cent. in 1896-97. The surplus amounts to 32 per cent. of the gross receipts, and though in excess of any year since 1891-92, is still considerably below the record figure of R4,52,846 attained in the year 1888-89. In view of the increase in the value of stock at depôts, which Form No. 60 A shows to be just double the value at which it was estimated

in 1895-96, it is presumed that larger annual surpluses may be looked for in the future. The amount of revenue outstanding—R1,04,107, as compared with R47,958 outstanding at the commencement of the year—seems to the Lieutenant-Governor to be unduly large. The proportion in which the revenue of the Department was derived from the several sources is noted below:—

Year.	Timber.	Fuel.	Grass and grazing.	Other items.
	%	%	%	%
1895-96	33	37	20	10
1896-97	46	28	17	9
1897-98	43	28	20	9

The following shows the financial results, under the three heads of work, for the three years, 1895-96 to 1897-98:—

	1895-96.		1896-97.		1897-98.	
	Surplus.	Deficit.	Surplus.	Deficit.	Surplus.	Deficit.
	R	R	R	R	R	R
I.—Departmental timber operations	2,56,226	...	2,92,715	..	3,21,655	....
II.—Other revenue . .	2,43,251	...	2,18,136	...	2,39,022	...
III.—Protection, etc. . . .	...	1,62,775	...	1,90,017	...	1,84,188
TOTAL .	3,36,702	...	3,20,834	...	3,76,189	...

The proportion of gross revenue spent on protection and improvement amounts to 16 per cent., as compared with 18 per cent. in 1896-97 and 15 per cent. in 1895-96; of this amount, 11 per cent. was spent on roads and buildings, while 89 per cent. was expended on other works of protection and improvement."

Burma.—The financial results compared with those of 1896-97 were as follows:—

Period.	Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
FOREST YEAR.	Pegu	21,96,265	7,78,069	14,15,196	64·5
	Tenasserim	19,73,727	5,91,270	13,87,457	70·1
	Total, Lower Burma .	41,71,992	13,69,339	28,02,653	67·1
	Eastern	22,16,126	5,30,843	16,85,283	76·0
	Western	8,21,785	2,78,696	5,43,089	66·0
	Total, Upper Burma .	30,37,911	8,09,539	22,28,372	73·3
	Grand Total, Burma, 1897-98 .	72,09,903	21,78,378	50,31,025	69·7
	" " " 1896-97 .	66,39,847	20,81,454	45,78,393	68·7
	Increase in 1897-98 .	5,50,056	97,424	4,52,632	1·0
FINANCIAL YEAR.	Pegu	20,26,722	8,33,813	11,92,909	58·8
	Tenasserim	20,50,479	5,70,327	14,89,152	72·3
	Total, Lower Burma .	40,66,201	14,04,140	26,52,061	65·5
	Eastern	23,54,466	5,18,962	18,35,504	77·9
	Western	7,74,590	2,73,506	5,01,084	64·7
	Total, Upper Burma .	31,29,056	7,92,463	23,36,593	74·6
	Grand Total, Burma, 1897-98 .	72,15,257	21,96,603	50,18,649	69·5
	" " " 1896-97 .	63,78,950	21,28,820	42,50,130	66·6
	Increase in 1897-98 .	8,36,307	67,783	7,68,519	2·9
	Average for the five years ending 1896-97. Lower Burma .	35,15,948	13,88,830	21,27,118	60·4
	Average for the five years ending 1896-97. Upper Burma .	22,75,384	5,40,752	17,34,632	76·2
	Average for the five years ending 1896-97. Total, Burma .	57,91,332	19,29,582	38,61,750	66·7

The following statement shows the various heads under which the revenue was realized :—

Particulars.	1896-97.	1897-98.	Increase or Decrease in 1897-98.
Lower Burma.	R	R	R
From timber and other produce removed from the forests by Government agency.	25 90,958	23,85,174	—2,05,784
From timber and other produce removed from the forests by consumers and purchasers. — Timber	7,13,793	11,16,212	+4,02,419
— Firewood and charcoal	49,486	58,082	+8,616
— Bamboos	67,306	83,646	+16,340
— Grazing and fodder-grass	972	1,091	+119
— Other minor-produce	12,494	12,100	—394
Confiscated drift and waif wood	2,25,072	1,92,280	—32,792
Duty on foreign timber and other produce	3,26,580	2,73,034	—53,546
Miscellaneous	49,716	50,373	+657
Total, Lower Burma	40,36,357	41,71,992	+1,35,635
Upper Burma.			
From timber and other produce removed from the forests by Government agency.	2,47,670	2,53,766	+6,096
From timber and other produce removed from the forests by consumers and purchasers. — Timber	20,29,327	24,85,917	+4,56,590
— Firewood and charcoal	36,911	45,494	+8,583
— Bamboos	45,709	69,587	+23,878
— Grazing and fodder-grass	190	493	+303
— Other minor-produce	2,13,113	1,26,833	—86,280
Confiscated drift and waif wood	23,285	26,080	+2,795
Duty on foreign timber and other produce	...	...	...
Miscellaneous	27,285	29,741	+2,456
Total, Upper Burma	26,23,490	30,37,911	+4,14,421

The Local Government remarks—

"The increase in Lower Burma was chiefly due to the high prices obtained from the sale of teak at Government auctions. The increase in Upper Burma was due to the larger extraction of timber by the Bombay-Burma Trading Corporation from the Pyinmana and Chindwin forests."

The average value per ton of teak exported from Moulmein and Rangoon rose to R87 against R83 in the previous year.

Central Provinces.—The Chief Commissioner thus explains the position—

"The following table shows the general result in thousands, of rupees, of each of the last five years. The figures already tend to show a return to the scale of the years previous to the recent bad times, but are still far below what may be considered as normal :—

	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Receipts.					
Southern Circle	561	539	492	442	488
Northern „	532	504	428	320	361
Total	1,093	1,043	920	762	349
Expenditure.					
Southern Circle	444	477	473	460	463
Northern „	398	401	386	404	407
Total	842	879	859	863	870
Result.					
Southern Circle	+117	+61	+19	—18	+25
Northern „	+134	+103	+42	—84	—46
Total	+251	+164	+61	—101	—21

The reasons of the falling off of forest revenue in the Central Provinces have been frequently and exhaustively discussed. There is no doubt that many of them are not of a merely temporary nature. The rules for *malguzari* forests, issued in October 1891, were intended to provide for the exercise of a stricter control than had previously been authorized. But as so often happens, the substitution of precise regulation for a vague authority

resting upon custom greatly hampered its exercise, and the definition of the limitations upon it brought home to the malguzars for the first time the very wide liberty of disposal which they possessed as regards their forest produce. Similarly, as explained by Mr. Fernandez, the optional nature of the commutation cess, which was naturally paid by all in days when no progress had been made with demarcation, and the boundaries between private and Government forests were unknown, has recently become more widely understood. Both causes have contributed to increase the competition of the *malguzari* forests with our own, which has been further intensified by the introduction of a regulated system of working; and wherever and so long as private forests can supply the needs of the local market as conveniently as our own, we can hardly expect our revenue to recover the ground thus lost. Again, the excision for *ryotwari* extensions of considerable areas in the neighbourhood of the settled tracts has not only reduced the area conveniently situated for the local demand, but has also, in many cases, afforded an immediate supply of *nistar* free of charge. The Government in the end gains largely in the matter of revenue, but the forest income suffers. Mr. Ibbetson cordially agrees with all that Mr. Fernandez wrote in paragraph 87 of his Report (Northern Circle) for 1896-97, on the advantages of a judicious lowering of rates to meet such circumstances as the distance of markets, difficulties of transport, and the ratio of supply to demand. There is much in our forests which it is better to sell at any price than not at all; and the fact should be steadily kept in view in both Circles. Some result is said already to have been produced in the Northern Circle. But except where Government forests possess advantages of position or otherwise over the *malguzari* forests, it is probable that the latter will always undersell the former, however low the rates be pitched, so long as their supply holds out."

Assam.—The following are the figures showing the financial results for the past five years :—

Year.	Receipts.	Expenditure.	Surplus.	Proportion of Surplus to Receipts.
	R	R	R	R
1893-94	4,92,811	2,65,421	2,27,390	46·1
1894-95	4,44,706	2,81,652	1,63,054	36·7
1895-96	4,04,482	2,89,323	1,15,169	28·5
1896-97	4,40,936	2,82,191	1,58,745	36·0
1897-98	3,70,778	2,86,146	84,632	22·8

The following table shows the revenue under main heads for the three years 1895-96 to 1897-98 :—

Budget heads.	1895-96.	1896-97.	1897-98.	Difference in 1897-98 compared with 1896-97.
	R	R	R	R
I.—Timber and other produce removed by Government agency.	7,548	32,214	16,794	—15,420
II.— Timber and other produce removed by traders . .	2,71,490	2,61,417	2,41,692	—19,725
II.— Valuation of waste lands taken up for cultivation .	39,061	66,683	35,520	—31,163
III.—Drift wood and confiscated forest-produce . .	5,788	5,237	12,098	+6,861
IV.—Revenue from forests not managed by Government .	32,887	35,311	26,528	—8,783
V.—Miscellaneous	47,708	40,074	38,146	—1,928
Total .	4,04,482	4,40,936	3,70,778	—70,15

Coorg.—The following shows the financial results of the year compared with those of 1896-97 :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Receipts.
	R	R	R	Per cent.
1897-98	1,35,318	84,081	51,237	37·86
1896-97	84,014	77,203	6,811	8·10
Increase in 1897-98 .	51,304	6,878	44,426	29·76

The principal increases of revenue were under timber, sandal and cardamoms.

Ajmer.—The Chief Commissioner remarks—

"From a financial point of view the working of the forests was relatively satisfactory. The realisations amounted to R15,295 against an expenditure of R15,597, or a deficit of R302 only on the year's operations. The corresponding figures for the previous four years are given in the subjoined table:—

	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	R	R	R	R	R
Receipts	14,343	12,887	15,380	12,532	14,295
Expenditure	15,696	14,794	16,467	21,014	15,597
Deficit	1,353	1,907	1,087	8,482	302

The increase in the revenue during the year of R2,763, as compared with that of the year 1896-97, is attributed to the extended area felled under the prescriptions of the working-plan, and occurs mainly under the heads of firewood and charcoal.

The expenditure, as compared with the figures for 1896-97, shows a decrease of R5,417."

Baluchistan.—The Agent to the Governor-General thus explains the financial position:—

"The following statement shows the financial results of the past forest year, as compared with the two preceding years:—

Forest year.	Revenue.	Expenditure.	Deficit.
	R	R	R
1895-96	14,751	36,382	21,631
1896-97	15,942	28,478	12,536
1897-98	14,449	28,534	14,085

The increased deficit of R1,549 in the accounts of the year is due to a decrease of R1,495 in the revenue and an increase of R56 in the expenditure. The former is accounted for by the falling off in the demand for firewood and the inclusion in the revenue of 1896-97 of an item of R423 on account of sales from the Shibu plantation. The increase in expenditure is small, and is due to the grant of dearness of provisions allowance to menial servants."

In the Zhob Valley an expenditure of R1,079 was incurred on forest conservancy, whilst the revenue realised, almost entirely royalty on wood and which is credited to Special Revenues, amounted to R4,238.

Andamans.—The following shows the financial results of working the forests for the years 1896-97 and 1897-98:—

	Period.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	1897-98	3,49,363	1,82,980	1,66,383	47·6
	1896-97	2,55,444	1,61,009	94,435	36·9
	Increase in 1897-98 . . .	93,919	21,971	71,948	10·7
Financial year.	1897-98	4,80,052	2,47,336	2,32,716	48·4
	1896-97	3,62,385	3,16,581	45,804	12·6
	Difference in 1897-98 . . .	+1,17,667	−69,245	+1,86,912	+35·8
	Average for the five years ending 1896-97	2,82,260	2,03,432	78,828	27·9

These results are satisfactory and show a surplus of R2,32,000, part of which was due to refunds. But allowing for this, the transactions of the year show a surplus of more than a lakh, or a marked improvement when compared with the two previous years.

Berar.—The financial results of the four years 1893-94 to 1896-97 were—

Year.	Receipts.	Charges.	Surplus.
	R	R	R
1893-94	4,79,475	2,64,318	2,15,157
1894-95	4,66,013	2,49,118	2,16,826
1895-96	4,95,899	2,27,862	2,68,037
1896-97	4,96,717	2,54,696	2,42,021

and the following statement shows the financial results of the year as compared with those of the year 1896-97 :—

	Period.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	1897-98	4,08,803	2,34,944	1,73,859	42·5
	1896-97	4,96,717	2,54,696	2,42,021	48·7
	Decrease in 1897-98	87,914	19,752	68,162	6·2
Financial year.	1897-98	4,00,350	2,42,515	1,57,835	39·4
	1896-97	5,17,771	2,40,708	2,77,063	53·5
	Difference in 1897-98	—1,17,421	+1,807	—1,19,228	—14·1
	Average for the five years ending 1896-97	4,79,876	2,44,500	2,35,376	49·05

The Resident remarks on these results as follows :—

"The recent famine has, as was expected, shewn its effects severely in the forest receipts of the past year. There is a decrease of R87,914 as compared with the year 1896-97."

Sir Trevor Chichele-Plowden does not lose sight of the fact that even in so unfavourable a year the accounts show a surplus of R1,73,859 in favour of the province. It has to be remembered, however, that the expenditure dealt with in the Forest Report does not include the whole expenditure of the Department. A considerable sum has been spent on forest roads by the Public Works Department, and the maintenance of these roads is provided for in that Department. The cost of stationery and printing is another item of importance."

Madras.—The Madras Government summarize the results as follows :—

"The financial results are exhibited in the table below :—

	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
1896-97.	R	R	R	Per cent.
Northern Circle	5,97,422	4,65,280	+1,32,142	22
Central "	9,48,547	5,84,782	+3,63,765	38
Southern "	6,42,948	5,37,815	+1,05,133	16
Total	21,88,917	15,87,877	+6,01,040	27
1897-98.				
Northern Circle	5,99,670	4,68,026	+1,31,644	22
Central "	8,88,334	5,56,487	+3,32,347	37
Southern "	6,62,610	5,63,976	+98,634	15
Total	21,51,114	15,88,489	+5,62,625	26
Increase or decrease in 1897-98.				
Northern Circle	+2,248	+2,746	—498	...
Central "	—59,713	—28,295	—31,418	...
Southern "	+19,662	+26,161	—6,499	...
Total	—37,803	+612	—38,415	...

It is observed that, though the quantity and value of the produce disposed of during the year was greater than in the previous year, the total revenue collected was less, the exact amount of the decrease being R37,803. This is partly due to the fact that receipts under *miscellaneous items* showed a decrease of R21,981 owing to a fall in the payments for clearing land on the Anamalais; but the balance appears to consist of the difference between the collections on account of arrears made during the year and the value of items not collected within the same period.

Under expenditure there was an increase of R59,602 under "*Establishment*" due chiefly to the reorganization of the executive staff, but this was counterbalanced by an almost equal decrease under "*Conservancy and Works.*"

The net result is a surplus of 5·62 lakhs of rupees, being 26 per cent. of the gross revenue."

Bombay.—The following statement shows how the Department suffered from the general depression with which all commercial enterprise was effected :—

Period.	Circle.	Receipts.	Charges.	Surplus or Deficit.	Proportion of Surplus to gross Revenue.
		R	R	R	Per cent.
Forest year	Northern	4,92,793	3,15,812	+1,76,981	35·9
	Central	4,98,617	6,10,138	—1,11,521	...
	Southern	12,84,130	9,22,402	+3,61,728	28·2
	Sindh	2,67,114	1,39,811	+1,27,303	47·6
	Total in 1897-98	25,42,654	19,88,163	+5,54,491	21·8
	„ 1896-97	30,40,897	20,24,047	+10,16,850	33·4
	Decrease in 1897-98	4,98,243	35,884	4,62,359	11·6
Financial year	Northern	5,02,522	3,30,593	+1,71,929	34·2
	Central	5,41,620	6,79,741	—1,38,121	...
	Southern	12,80,722	9,20,652	+3,60,070	28·1
	Sindh	2,91,793	1,42,204	+1,49,589	51·2
	Total in 1897-98	26,16,657	20,73,190	+5,43,467	20·7
	„ 1896-97	30,32,708	19,69,160	+10,63,548	35·0
	Difference in 1897-98	—4,16,051	+1,04,030	—5,20,081	—14·3

The Bombay Government in their review of forest administration for the year say—

"The prevalence of plague, and its extension over a wider area, the after-effects of famine, and the continuance of scarcity in many tracts combined to effect a most serious reduction in the revenue of the year.

"In the Northern Circle the net surplus was only R1,76,981, the lowest recorded in the last ten years and nearly R87,000 less than that of the previous year, and over three lakhs less than the average of the three years ending 1895-96. In the Thana Division it was found impossible to sell 38 coupes, and the price of those sold which fell in the previous year from 36·4 to 25·5 per acre experienced a further fall in the year under review to R24·3. The Central Circle, which, owing to the excellent organization of its resources by its able Conservator, Mr. Shuttleworth, had for years shown handsome and increasing surpluses, in 1896-97 barely paid its way, and in the year under report actually shows a deficit of R1,11,521. In Khandesh a surplus of R1,27,687 was obtained, but every other division contributed to the deficit. This was the Circle in which on the whole famine was the most severe in the forest districts. The grazing revenue was severely affected by reason of the remission of fees to agricultural cattle on account of the famine, and the special grass supply operations, though of great value for the purpose for which they were initiated, were, as anticipated, the reverse of profitable commercially. The disastrous effects of stagnation in the timber trade may be gathered from the fact that the Circle, which usually derives from timber receipts considerably over a lakh of rupees gross revenue, this year realised not quite thirteen thousand. It is due to Mr. Shuttleworth and his zealous subordinate officers to state that in the opinion of Government these lamentable results were in no way due to want of energy or ability in grappling with the situation. They were in the circumstances of the year wholly unavoidable. Government, however, cannot approve without further explanation of the Conservator's proposal to discontinue firewood operations in certain talukas of the Satara District. It is the declared policy of Government to encourage the use of cowdung as manure by rendering available a sufficient supply of firewood as fuel; and it is the duty of the Forest Department to bring the price of the fuel down to the capacity of the consumer. There is no advantage in allowing the fuel to lie useless on the hill sides if means can be devised for its utilisation without positive loss to the Department or injury to the forests.

"In the Southern Circle receipts fell by over R1,56,000, while the expenditure on "Conservancy and Works" rose by about R62,000, the net surplus being thus reduced from R5,64,241 to R3,61,728. In such circumstances Government would have expected a further explanation from the Conservator of the causes of the simultaneous growth of expenditure and the decrease of revenue. The general depression of trade which is said to account in part for the latter is a matter of notoriety, but in the absence of further information the complaint as to the dearth of labour, especially in a populous district like Belgaum, is not understood. The increase in expenditure is reported to be due to the disbursement of back payments to contractors and the exportation of bamboos for the Public Works Department and the Plague authorities.

"In the Sindh Circle there was a decrease in the total receipts from R3,12,297 to R2,67,114 and in the net surplus from R1,78,088 to R1,27,303. The Conservator has explained the failure of several contractors to fulfil their undertakings owing to the monetary stringency and the dislocation of trade. Government accept the Commissioner's assurance that every effort was made to surmount the difficulties of the situation."

CHAPTER V.

I.—Establishment.

Of the 19 permanent Conservators, 16 remained on duty throughout the year. The sanctioned strength of officers of the Imperial Forest Service stood at 186 at the close of the year. Of these 165 remained on duty throughout the year. Three officers were on foreign service, Mr. McDonell continuing to keep charge of the Kashmir forests and Messrs. Slade and Tottenham being lent to Siam. Two officers of the Provincial Service are also now at work under the Siam Government, which is, moreover, making arrangements to get officers trained at the Dehra School to enter their service—an enlightened policy which it is very satisfactory to record, and one likely to have the best result on the forest wealth of the country.

Of the 43 appointments which under the re-organization scheme are to be transferred from the Imperial to the Provincial Service, two were transferred during the year, bringing the total number thus dealt with to 14 at the close of the year. Under the reorganization of the Imperial and Provincial Services in 1891, and of the subordinate establishment in 1897, the prospects of the two latter branches of the Service have been much improved, and the students who obtain their certificate at the Imperial Forest School, Dehra Dun, can now rise to the rank of Extra-Deputy Conservator on Rs. 650 a month.

The question of the reorganization of the office establishments still remained unsettled; it is now, however, in an advanced stage, and will, it is hoped, be shortly decided.

The members of the subordinate staff are but indifferently reported on, more particularly in the Central Provinces and Madras; but it is satisfactory to note that Forest Rangers have done good work in most provinces. The full effect of the re-organization lately sanctioned is not yet felt, and it is believed that with the better prospects now existing a better class of man will come forward, and the discipline and work of the subordinate staff will be gradually improved.

II.—Experiments.

Experiments were continued with *Robinia pseudo-acacia*, but the tree does not appear likely to prove so useful in re-stocking bare areas with poor soil, as had been at one time anticipated. In favourable situations in good soil, and at an elevation of not less than 5,000 feet it has proved most successful, and its growth in the Simla Division is often excellent, and it is also doing well at Sukesar, in the Shahpur Division, where the trees planted in 1893 are now nearly 30 feet high. It also gives promise of success in Baluchistan.

On the other hand it has failed at Darjeeling; at Dehra and at Jaunsar its growth is indifferent, whilst the Conservator of the Punjab remarks that it does not appear to thrive at all on the lower hills, where it is most required, owing to the excessive heat and deficient rainfall; and this will probably prove to be the case.

The Spanish chestnut trees introduced into Bashahr and Kulu have proved very successful and are now yielding some 20 to 40lb of good fruit yearly. A scheme is under consideration for largely distributing the tree throughout Kulu and Bashahr, as well as in the North-Western Provinces Himalayas.

In Madras as usual a number of experiments were made; in Kistna 600 bamboo plants were put out in the Weld reserve, and they are doing well. In South Malabar several kinds of bamboos artificially introduced on the banks

of the rivers in Pokote and Mulathmanna are doing well. *Arundinaria Brandisii* (the giant bamboo) planted in Ayravallikava in 1879 have now some of them a girth of 22 inches. Of a number of trials to introduce the date tree the greater number have failed; those made in the Vettangudi reserved forest appear to have the greatest chance of success.

Many experiments have been made to encourage the growth of the mahogany tree (*Swietenia macrophylla*), with varying success. The plants put out at Kanoth are doing well, one being nearly 30 feet high. The trees in Pokote and Edacode, as well as those in the Kullar nursery, are doing well, but on the whole the experiments have not been very successful. That the tree will flourish is shown by the fact that the single tree in Chathambarai measures 87 feet in height, and has a girth of 74 inches, and once its culture from seed is better understood, there appears no reason why the efforts made to rear it should not be more successful than they are at present.

The supply of India-rubber continued to decrease, and in Assam the outturn of home and foreign rubber fell off by 38 and 26 per cent. The total amount of India-rubber exported fell to 278 tons as against 422 tons, the average of the preceding five years, the value at port of shipment rising to Rs. 3,038 per ton against Rs. 2,889 in the previous year. The importance of increasing the India-rubber resources of the country is fully recognized. The Charduar rubber plantation was extended by 41 acres, and now covers an area of 1,700 acres, and it is intended to tap trees in it regularly in future years. Experimental tappings tend to show that about 1 seer per tree can be obtained annually without damage to the tree. Steps are being taken to start experimental plantings of the Ceara rubber tree in the Mount Stuart forest, in South Coimbatore.

The possibility of starting large plantations of the Para rubber tree in Burma is at the present moment under consideration, and a general investigation of all plants yielding a latex possessing some of the properties of rubber is being undertaken.

An interesting experiment was carried out under the orders of the Government of India with a view to introducing the Chinese silkworm into India, and so improving and increasing the output of Indian silk. A supply of living cocoons was procured through the courtesy of Her Majesty's Consul at Newchang and distributed partly to Darjeeling and partly to Chakrata. Those sent to Darjeeling failed, but from those sent to Chakrata some 5,000 larvæ were hatched out. Fed at first on the leaves of the Bán Oak (*Quercus dilatata*) they did not flourish, but removed to Deoban at an elevation of 8,000 feet and fed on the leaves of the Karshu Oak (*Quercus semecarpifolia*) they did much better, and 182 of the larvæ became full grown and encased themselves in cocoons. Seeds of the Chinese Oak, on which the worms thrive in China, were also obtained and have been sown at Darjeeling, Chakrata, and Jutogh.

Attention continued to be directed to the study of barks, etc., likely to prove suitable for the preparation of tannin extracts, and much useful information has been collected.

At a conference held at Calcutta between the Inspector-General of Forests and the Reporter on Economic Products, it was decided to restrict the enquiry to the following species of trees which, from the preliminary enquiries, seemed to give the best promise of yielding good results:—

Acacia arabica.

„ *Catechu* (Chips of wood).

Shorea robusta.
Terminalia tomentosa.
Anogeissus latifolia.
Cassia Fistula.
Cassia auriculata.
Phyllanthus Emblica (fruits).
Pterocarpus Marsupium (bark from trees felled and of branches).
Xylia dolabriformis (waste wood, sawdust, and branches).
Ceriops Candolleana.
Terminalia Chebula (fruits from Burma).
Pinus longifolia.
Casuarina equisetifolia.
Acacia leucophlœa.
Briedelia retusa or *B. montana.*
Kandelia Rheedii.
Bruguiera gymnorhiza.
Rhizophora mucronata.
Ceriops Roxburghiana.

Analysis of the raw material made by Mr. Hooper, Curator of the Economic Section, Indian Museum, Calcutta, gave the following results :—

			Tannin.	Extracts.	Moisture.	Ash.
Terminalia Chebula,	bark, E. No.	11409	28·6	31·2	11·7	10·1
Rhizophora mucronata	do.	10759	26·9	40·0	10·9	9·2
Ceriops candolleana	do.	10282	26·2	28·0	13·3	10·6
Cassia auriculata	do.	10746	23·0	32·8	11·1	5·9
Ceriops Roxburghiana	do.	10285	19·2	27·8	9·2	18·0
Acacia dealbata	do.	11389	17·8	23·6	12·1	4·6
Acacia arabica	do.	10586—1	16·7	26·0	9·8	10·9
Acacia leucophlœa	do.	10579	16·2	23·0	7·4	9·8
Bruguiera gymnorhiza	do.	10291	15·9	21·2	9·6	7·3
Briedelia retusa	do.	10639	15·9	16·6	9·5	11·0
Pinus longifolia	do.	10581	14·6	26·3	8·9	3·9
Kandelia Rheedii	do.	10283	12·2	17·7	9·9	9·8
Casuarina equisetifolia	do.	10482	11·1	14·4	10·3	4·9
Cassia Fistula	do.	10977	9·5	27·9	11·2	11·0
Acacia Catechu	wood,	10978	6·8	14·3	5·5	1·5
Pterocarpus Marsupium	do.	10585	5·4	7·0	10·2	12·9
Shorea robusta N.-W. P.,	old trees do.	10975	10·0	19·2	11·6	3·4
Ditto	Coppiced trees do.	10975—1	10·5	21·0	12·4	6·5
Ditto	Assam, mature do.	11093	13·2	21·2	11·4	6·0
Ditto	Old branches do.	11093—1	2·8	6·3	13·5	5·1
Ditto	C. P. ditto do.	11036	6·7	16·3	7·2	10·5
Ditto	Old trunk do.	11035—1	4·6	7·5	9·5	6·0
Ditto	Young coppice trees do.	11035—2	7·1	11·2	10·1	4·0

				Tannin.	Extracts.	Moisture.	Ash.
Terminalia tomentosa, N.-W. P.,	old trees, bark,	R. No.	10976	11·8	20·5	12·6	25·0
Ditto	coppiced trees	do.	10976—1	12·3	26·0	19·4	22·0
Ditto	Old branches	do.	10976—2	13·6	19·7	10·0	20·7
Ditto	Assam mature trees	do.	11094	8·6	15·5	11·8	12·5
Ditto	Old branches	do.	11094—1	5·7	7·5	12·0	24·4
Ditto	C. P., Old bark	do.	11034—1	26·2	28·7	10·4	21·6
Ditto	young coppiced trees	do.	11034—2	12·6	16·0	9·1	29·5
Ditto	Old branches	do.	11034	11·7	17·3	9·2	17·1
Xylia dolabriformis	sawdust	do.	11442	6·1	7·0	9·0	2·4
Ditto	Chips	do.	10442—1	5·4	6·0	8·0	4·1
Ditto	Sawdust	do.	11408	·8	1·0	20·8	2·2
Ditto	Chips	do.	11408—1	4·6	5·7	5·6	2·9

In an article on tannin extracts in the "*Indian Forester*" for April 1899 it is stated—

"Arrangements were next made to ascertain the market value of the extracts made in India, as compared with those in actual use in Europe. Some samples of extracts of Pyinkado, etc., were sent to Germany by favour of Messrs. Von Ernsthausen & Co., and were analysed by Drs. Popp and Becker, authorised trade Chemists and Analysts of Frankfort. The best sample contained 37·24 per cent. of tanning agents and too much colouring material was present. The opinion was given that extracts containing so low a percentage of tannin could not compete with those at present in use in the German market. The extract in use which contains the lowest percentage of tannin is that of Quembracho, which contains 43·2 per cent. of tanning agents; and this can be bought in Germany at 33 marks per 100 kilogrammes, or say, R9·1·5 per maund or R247·8 per ton.

Further reports were obtained by favour of Messrs. Ernsthausen from Messrs. Schönbank and Sons, of Berlin. The following shows the results of analyses made by them:—

	Acacia arabica, bark.	Acacia arabica, pods.	Terminalia tomentosa, bark.	Terminalia tomentosa, bark.
Tanning agents	30·00%	22·80%	52·50%	23·40%
Non-tanning soluble substances	24·40 „	34·10 „	27·10 „	33·40 „
Insoluble	6·20 „	8·40 „	6·80 „	31·60 „
Water	39·40 „	34·70 „	13·60 „	11·60 „
	100·00	100·00	100·00	100·00

And they compare this with the analysis of tannin extracts procurable in Germany which is as follows:—

	Liquid extract of Oak wood.	Liquid extract of Chestnut.	Liquid extract of Quembracho.	Solid extract of Quembracho.
Tanning agents	28·60%	30·40%	38·80%	68·50%
Non-tanning soluble agents	13·70 „	8·20 „	2·40 „	5·40 „
Insoluble agents	2·20 „	1·80 „	3·20 „	6·80 „
Water	55·50 „	59·60 „	55·60 „	19·30 „
	100·00	100·00	100·00	100·00

Messrs. Schönbank and Sons report that the extracts from *Terminalia tomentosa* are too dark in colour and require to be decolorated before they can have any chance of finding a market. Further, they state that the samples contain far too large a proportion of non-tanning soluble substances, from 24·40 per cent. to 34·10 per cent. as compared with 2·40 per cent. to 13·70 per cent. in the extracts used in the trade, and they conclude that in order to render it possible for tanning extracts made in India to find a market in Europe, it is absolutely indispensable that they should be prepared in a rational, up-to-date manner, that the colouring matter should, as far as possible, be removed from the liquid solutions before condensation, and that these should be condensed in a vacuum.

These reports show clearly that the preparation of extracts in a rough and ready way in the forests is but a waste of time and money. The question of importing modern machinery is under consideration; the methods by which the solution may be decolorated is being investigated and in the meantime experiments are being continued at the Forest School at Dehra."

III.—Exports of Forest-produce.

The following table gives the amounts and value of various articles exported from India during the year:—

Articles of Forest-produce.	Quantity, in tons of 20 cwt.; in the case of Teak, cubic tons.		Valuation at port of shipment in 1897-98.	
	Average of five years, 1892-93 to 1896-97.	In 1897-98.	Total.	Per ton.
			R	R
Caoutchouc	422	278	8,41,784	3,033
Lac—				
Button	1,445	1,353	13,15,233	972
Shell	6,660	9,466	92,86,795	981
Stick and other kinds	94	122	1,07,175	878
Lac-dye	8	...	...	...
Sandal-wood, ebony and other ornamental woods	Information	not available	5,86,937	...
Cutch and gambier	8,773	4,859	18,74,850	386
Myrabolams	45,206	36,303	25,89,486	71
Teak	57,709	81,866	95,46,521	116
Cardamoms	101	48	2,43,659	5,076
Total in 1897-98	...	...	2,63,95,440	...
„ 1896-97	...	...	2,84,83,250	...
Decrease in 1897-98	...	...	20,87,810	...

There has, therefore, been a marked falling off in exports under nearly all heads. Cutch and gambier show a decrease of 1,245 tons, as compared with the exports of the previous year, and now show little more than half the average amounts exported during the previous five years. On the other hand, the exports of teak show a steady increase, and during the year reached the large total of 81,866 tons, being 17,645 tons more than in the previous year. It is satisfactory to record that, notwithstanding the increased export, prices were well maintained and stood firm at R116 per ton at port of shipment, a slightly higher rate than in the previous year. The following particulars of the teak trade, communicated by Messrs. The Bombay-Burma Corporation, Limited, and Messrs. Macgregor and Company, may be recorded:—

"Prices per load ranged from £12 to £12-10-0, rising to £13-10-0 for planks, and consumption in the Home markets maintained the same level as last year at about 70,000 tons, of which about 26 per cent. was derived from Siam. In deck planks a new trade is developing at rates ranging at present from £17 to £20 per load.

In the European markets complaints (believed to be well-founded) arose as to inferiority of recent shipments, especially of timber from Moulmein. In the Indian markets the prices of squares have ranged from R65 to R90 per ton, according to quality, and an increasing demand arose for scantling at R70 to R120 per on according to dim ensions."

IV.—Technical Education and Recruitment.

Five young forest officers, having completed their course of training at Cooper's Hill College, joined the Department in India towards the end of 1897. They were all posted to Burma.

The number of officers selected by competition for the Forest Department during the year was six, and they commenced their course of training at Cooper's Hill College under the guidance of Dr. Schlich, who continued Professor of Forestry, assisted by Mr. W. R. Fisher, throughout the year.

The Imperial Forest School at Dehra Dun continued to do excellent work under its Directors Mr. J. W. Oliver (1st July 1897 to 10th January 1898) and Mr. J. S. Gamble (10th January 1898 to close of year). Mr. Gleadow continued to hold the post of Deputy Director, and Mr. A. F. Gradon that of 1st Instructor. The post of 2nd Instructor was held, for part of the year, by Mr. B. B. Osmaston, who on being placed in charge of the Jaunsar Division was relieved by Mr. Caccia. Babu Upendra Nath Kanjilal was Vernacular Instructor and Babu Birbal was appointed Assistant Vernacular Instructor and Curator. The regular School staff was also assisted by Mr. J. F. Duthie, Director of the Botanical Department, Northern India, the Assistant Agricultural Chemist, and officers of the School Circle.

The number of students who completed the course during the year was 28 in the Upper Class and 9 in the Lower Class. Of these 20 obtained their certificate by the Higher Standard (two with honours) and 9 by the Lower Standard. In his report of the year's work the Director remarks—

"Since 1881 Higher Standard Certificates have been granted to 346 students and Lower Standard Certificates to 105 students. The following table embodies the available information in regard to their subsequent careers; it differs somewhat from the table of last year in consequence of more accurate information having been obtained for the correction of the School Calendar. In the Forest Department under the Governments of India and Madras—

			Higher Standard Certificate.	Lower Standard Certificate.
Deputy Conservators	2		2	...
Extra-Deputy Conservators	3		3	...
Extra-Assistant Conservators	62		61	1
Forest Rangers	194		168	26
Deputy Rangers	39		5	34
Foresters	4	304	1	3
In the Commission	—	3	3	...
„ Police		1	1	...
„ Ceylon Forest Department		4	4	...
In Forest Departments of Native States		60	43	17
Left the service		17	13	4
Deceased		32	18	14
No information is available in regard to		30	24	6
TOTAL		451	346	105

Good reports continue to be received from most Provinces of the work done by old students, especially by the Extra-Deputy and Extra-Assistant Conservators. Two of these, Messrs. Healy and Marshall, have been selected to help in organizing work in Siam. Babu Har Swarup has been placed in charge of the forests of Ajmer, and Pandit Keshavanand of those of the State of Tehri-Garhwal. In other Native States also, old Dehra students are at the head of the Forest Department; Sunder Lal Pathak in Patiala, Gokul Dass in Jodhpur, Gurdit Singh in Kapurthala, and Choga Lal in Jeypur among others. All these keep up more or less their old connection with the School. In Hyderabad and Mysore some of the old Dehra Dun students are in charge of important divisions and others are at work in Kashmir, Baroda, etc. Recent reports have specially mentioned the good work done by old students in several Provinces, and it is specially satisfactory to see that several of them have been employed on working-plan work."

An important step was taken during the year in the establishment of a Vernacular Forest School in Burma for the special training of Burmese, the

want of which has been much felt for many years past. The new school is to be located at Tharrawaddy, and has been placed in charge of Mr. Buchanan, an Extra-Deputy Conservator of Forests.

V.—Forest Administration in Native States.

Copies of their annual Administration Reports have been received from Jammu and Kashmir, Jodhpur, Mysore, and His Highness the Nizam's Dominions in Hyderabad. In Kashmir the management of the State forests continued to be successfully carried on by Mr. McDonell. The total area of forests on the books of the department at the close of the year stood at 1,885 square miles, being an increase of 59 square miles during the year. Of this total area, about 480 square miles are estimated to contain deodar; it is thought unlikely that any further forests worth reservation will be found. Considerable attention was paid to demarcation in the face of considerable opposition from *jagir* villagers. The area of forests completely demarcated at the close of the year stood at 568 square miles; that partially, but in most cases sufficiently, demarcated at 548 square miles. The undemarcated tracts comprise an area of some 700 square miles, so the Department has still much important demarcation work to carry out.

Good progress was made in the survey of boundary lines, and an expenditure of ₹1,652 was incurred on this work.

Two hundred and twelve cases of forest offences were brought before the Courts, in which at the close of the year there were 424 cases pending. Two hundred and four cases were disposed of during the year, convictions being obtained in 108 cases only. The Conservator complains bitterly of the difficulty in getting the Courts to dispose of cases, and of providing sufficient evidence to obtain convictions in cases left pending, as is too often the case, for several years. The results of fire-protection were again statisfactory, 11,000 acres being alone burnt over, much of this being land covered only with bushes and grass.

The year was a very favourable one for forest operations, and the revenue rose to ₹10,96,000; the expenditure was ₹4,01,000, leaving a surplus of ₹6,95,000, which is more than it has ever been before.

Forest administration in Kashmir appears to be on a sound basis; demarcation should be pushed on, and the forests brought under working-plans. It will probably be found necessary to reorganize the subordinate staff, for, with the present paucity of trained officers, there is much difficulty in framing plans, and even if framed it would be found impossible to properly carry out their provisions.

In Mysore the area of the State forests at the close of the year stood at 1,545 square miles, of which 176 square miles were added during the year. A further area of 238 square miles was under enquiry and settlement. One hundred and eight miles of new demarcation lines were cut, and lines were re-cleared over 257 miles. A total expenditure of ₹12,540 was incurred. The actual state of demarcation cannot be gathered from the report, and it would be well to keep up a form similar to Form No. 48 prescribed in the Forest Department Code, showing what has been done and what still remains unfinished. Good progress was made in surveys, 116 square miles being surveyed. It is satisfactory to note that maps have been made for each district and for the whole province, which only require testing and correction before issue.

Two hundred and sixty-eight cases of breaches of forest rules were tried by the Courts, and convictions obtained in 73 per cent., a result not quite so satisfactory as in the previous year. Fire-protection was attempted over an area of 1,600 square miles, out of which 277 square miles or 17 per cent. was burnt. This is capable of considerable improvement, and from the remarks made by the Conservator regarding the Mysore District, it would appear that fire conservancy arrangements require to be placed on a sounder footing. The financial results were satisfactory, the revenue being R10,97,241, expenditure R4,30,893 and surplus R6,66,348 as compared with R4,90,160 in the previous year. The increased surplus is due to increased sales of sandal wood. The quantity of sandal wood sold was 1,572 against 1,304 tons, and the amount realized R6,07,000 against R4,63,000. The average value per ton was R386 or R31 more than in the previous year. It is estimated that forest produce to the value of R3,00,000 was taken away free by raiyats.

Colonel Campbell-Walker, who became Conservator of Forests in Mysore in December 1895, has now completed his three years' term of office and made way for Mr. J. L. Pigot, formerly Deputy Conservator of Forests in Coorg. The Mysore Government in their review of the year's work remark—

"The Government have much pleasure in recording their appreciation of the valuable services rendered to the State in the Forest Department by Colonel J. Campbell-Walker during his tenure of office as head of the Forest Department in Mysore, extending over three years. He introduced improved methods of working in the Forest Department and maintained the department in a high state of efficiency."

Before leaving Colonel Campbell-Walker wrote and submitted to the Mysore Government some "Suggestions regarding forest administration in Mysore" which should prove of value to his successors. He is of opinion that the areas of reserves should be largely increased, and that under proper management the forest revenue in Mysore is capable of considerable enhancement.

The area of reserved forests in the dominions of His Highness the Nizam of Hyderabad was 3,831 square miles at the close of the year, of which 129 square miles were added during the year. There is also a very large area of open forests, much of which contains valuable timber growth, to which a certain amount of protection, by the reservation of certain species, is accorded. This protection is, however, reported to be quite insufficient, and the open forests appear to be rapidly deteriorating. The remedy lies in selecting as quickly as possible a sufficient area of the most valuable forests to be properly managed as permanent forest estates. The Conservator, Mr. Biscoe, is doing his best to push on reservation, and has proposals ready for the reservation of further areas of some 4,900 square miles, and considers that the area to be ultimately reserved should not be less than 10,000 square miles. It is satisfactory to note that since the close of the year to which the report refers an area of 860 square miles has been constituted reserved forest. Demarcation work made fair progress, but there appear to be a number of boundary disputes which should be settled as soon as possible.

The possibility of framing working-plans is discussed by the Conservator, and proposals are formulated for the preparation of a plan for the Kanad reserve. Owing to the existence of extensive private forests, the owners of which are at present able to undersell the Government, the Conservator is probably right in thinking that the time for placing the bulk of the forest areas under regular working-plans is not yet come. There appears to be a marked absence of roads leading from the forests to the markets, and until these are constructed the

forests must remain unexploited. The protection of the reserves appears to be very insufficient, and there were a large number of undetected and unpunished cases. Twelve cases were disposed of by the Courts, and convictions obtained in 4 cases only. Fire-protection was in force over 16 square miles only, and this area was saved from fire. The rest of the forests, both reserved and open, were all burned over, with the result that, in addition to the immense damage done to tree-growth, there was, in the subsequent time of scarcity, no grass for the cattle to eat, and that these died in hundreds.

The revenue amounted to R2,02,000 and the expenditure to R1,26,000, leaving a surplus of R76,000 as against R75,000 in the previous year.

It will be gathered from the above that forest administration in Hyderabad is beset with difficulties, and that it is indeed still in its infancy. The areas concerned are very large and the establishment employed quite insufficient. Demarcation is incomplete and fire-protection, without which proper forest conservancy cannot exist, has but just been started.

In Jodhpur the total area under the management of the Department stood at 301 square miles, and this appears to be satisfactorily demarcated. Surveys were in progress by the forest staff, and maps will soon be available. A working-plan has been prepared for the Desuri forest (5,438 acres), and the grazing regulated. A plan was also prepared for part of the Kanuja forest. Two hundred and sixty-three cases of breaches of forest rules were compounded, an average of R1-4-3 being realized per person concerned: 4 cases were prosecuted in the Courts and convictions obtained in all. One lakh eighty-nine thousand one hundred and twenty-seven acres were under fire protection, of which 2,579 acres only were burnt, a very satisfactory result. Natural reproduction is reported to be in a satisfactory condition, and a lot of bamboos were planted out. The revenue realized was R23,915, the expenditure was R20,434, and the surplus R3,481. Forest produce was given away free to the estimated value of some R17,000.

APPENDIX I.

Summary of the Revenue and Expenditure of the Forest Department in India for the year 1897-98.

Summary of the Revenue and Expenditure

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	18,570	3,83,560	3,80,970	6,95,840	22,86,130	3,40,020	66,600	14,120	95,360	420	2,660
II.—Timber and other produce removed from the forest by consumers or purchasers.	560	7,71,100	9,29,710	2,97,000	12,63,340	27,37,990	6,79,070	2,92,360	34,970	14,480	1,950
III.—Drift and waif wood and confiscated forest produce.	...	6,670	15,240	36,040	1,99,790	23,280	2,460	11,640	...	30	...
IV.—Revenue from forests not managed by Government.	...	...	12,740	2,410	2,86,120	...	...	28,250	...	...	9,500
V.—Miscellaneous	...	27,950	48,010	37,180	50,820	27,770	31,920	38,450	580	610	930
Total Revenue .	19,130	11,89,280	13,86,670	10,68,470	40,86,200	31,29,060	7,80,050	3,84,820	1,30,910	15,540	15,040
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	970	1,95,430	1,97,170	3,09,540	5,06,090	1,51,200	35,000	4,330	23,460	60	1,200
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	53,330	18,880	880	14,890	6,980	98,930	4,720	...	10	...
III.—Drift and waif wood and confiscated forest produce.	...	1,900	5,280	8,120	83,720	16,620	20	570	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	5,460	...	4,900	...	...	...	...	...	40
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	19,130	40,400	...	...	...	11,500	...	...	...
VI.—Live-stock, stores, tools and plant .	...	11,070	27,070	5,910	45,690	29,620	17,500	13,400	1,670	230	20
VII.—Communications and buildings .	...	51,830	1,16,560	43,380	24,050	55,150	17,250	22,890	5,690	670	...
VIII.—Demarcation, improvement, and extension of forests.	230	35,220	1,97,490	30,280	2,60,990	96,270	1,88,690	27,280	16,650	2,030	...
IX.—Miscellaneous	...	3,720	9,450	2,340	7,760	4,350	4,190	1,740	300	140	...
Total A.—Conservancy and Works .	1,200	3,52,500	5,06,490	4,40,650	9,48,090	3,60,190	3,61,580	86,430	47,770	3,160	...
B.—Establishment.											
I.—Salaries	82,620	2,42,470	3,40,550	2,66,840	3,75,970	3,59,740	4,45,440	1,66,020	30,840	9,610	22,220
II.—Travelling allowances . . .	...	38,430	42,440	40,630	54,840	57,020	39,710	23,530	6,210	1,050	2,790
III.—Contingencies	480	20,040	28,370	23,620	25,210	15,550	74,710	12,850	2,200	850	840
Total B.—Establishments .	*83,100	3,00,940	4,11,360	3,31,090	4,56,020	4,32,310	5,59,860	2,02,400	39,250	11,510	25,850
Grand Total of Expenditure .	84,300	6,53,440	9,17,850	7,71,940	14,04,110	7,92,500	9,21,440	2,88,830	87,020	14,670	27,330
Surplus .	...	5,35,840	4,68,820	2,96,530	26,82,090	23,36,560	...	95,990	43,890	870	...
Deficit .	65,170	...	...	...	...	...	1,41,390	...	...	...	12,290

* Includes salary of the Inspector-General and Assistant

DIX I.

of the Forest Department in India for the year 1897-98.

Territories).			Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand Total.	Budget Heads.
Andamans.	Forest School.	Forest Surveys (Imperial).							
R	R	R	R	R	R	R	R	R	REVENUE.
3,64,880	...	...	66,49,130	4,91,450	11,14,630	62,55,210	...	62,55,210	I.—Timber and other produce removed from the forests by Government agency.
1,750	...	...	70,21,280	14,89,630	14,00,790	99,14,750	3,95,980	1,03,10,730	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	2,95,150	13,760	3,140	3,17,050	350	3,17,400	III.—Drift and waif wood and confiscated forest produce.
...	...	...	3,39,020	...	13,390	3,52,410	...	3,52,410	IV.—Revenue from forests not managed by Government.
67,080	2,890	22	3,31,410	1,41,600	29,710	5,55,720	4,020	5,59,740	V.—Miscellaneous.
4,33,710	2,890	22	1,26,41,990	21,36,490	26,16,660	1,73,95,140	4,00,350	1,77,95,490	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
3,03,380	...	...	16,29,830	1,80,340	6,09,160	24,19,330	...	14,19,330	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	1,98,620	90,150	39,760	3,23,530	46,650	3,69,180	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,16,230	1,650	530	1,18,410	...	1,18,410	III.—Drift and waif wood and confiscated forest produce.
...	...	...	10,400	...	...	10,400	...	10,400	IV.—Revenue from forests not managed by Government.
...	...	...	71,030	17,570	35,990	1,24,590	15,560	1,40,150	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
20,920	920	3,680	1,77,700	52,110	14,730	2,44,540	3,870	2,48,410	VI.—Live-stock, stores, tools and plant.
1,310	...	...	3,38,850	90,710	5,080	4,64,670	20,360	4,85,030	VII.—Communications and buildings.
190	...	5, 40	1,71,320	3,76,890	2,81,530	13,69,810	19,890	13,89,700	VIII.—Demarcation, improvement, and extension of forests.
760	2,440	110	37,310	8,100	66,910	1,12,320	3,330	1,15,650	IX.—Miscellaneous.
2,23,560	3,360	9,730	33,51,390	7,57,520	10,83,690	51,92,600	1,03,660	52,96,260	Total A.—Conservancy and Works
									B.—Establishments.
16,450	50,230	18 500	24,37,550	6,33,290	8,24,910	39,35,750	1,12,280	39,98,030	I.—Salaries.
2,960	4,160	...	3,12,870	1,29,760	1,19,610	5,62,240	16,960	5,79,200	II.—Travelling allowances.
270	3,120	5,720	2,13,830	52,280	44,980	3,11,090	11,150	3,22,240	III.—Contingencies.
19,780	57,560	24,220	29,54,250	8,15,330	9,89,500	47,59,080	1,40,390	48,99,470	Total B.—Establishments.
2,47,340	60,920	33,950	63,05,640	15,72,850	20,73,190	99,51,680	2,44,050	1,01,95,730	Grand Total of Expenditure.
1,86,370	...	...	63,36,350	5,63,640	5,43,470	74,43,460	1,56,300	75,99,760	Surplus.
...	58,030	33,730	...	...	...	...	...	...	Deficit.

Inspector General of Forests and their establishments and contingencies.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1873-74 to 1897-98.

REVENUE.

Provinces.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
Imperial†	1,225	1,141	1,465	2,490	1,36,772	16,716	17,216	18,887	27,497	30,732	32,976	26,578	15705	4,186	4,817	5,012	4,759	6,370	6,623	5,240	2,68	4,58	2,690	4,160	19,13
Bengal	1,79,388	1,85,922	1,98,271	2,22,101	2,25,223	1,86,027	1,49,521	5,61,310	6,33,721	6,93,956	6,91,331	5,71,152	5,97,132	6,53,634	6,57,791	6,76,907	7,68,718	7,27,392	7,89,553	7,44,882	8,01,616	7,95,670	9,18,710	13,70,85	11,89,220
North-Western Provinces and Oudh	13,32,977	13,63,353	12,61,350	11,50,671	12,03,108	11,26,755	10,39,966	9,42,223	10,05,091	10,12,103	10,11,253	15,72,219	15,61,195	15,73,556	12,87,151	14,62,802	17,14,159	16,37,879	17,31,516	16,52,540	17,09,86	16,58,25	16,01,31	16,11,82	13,86,670
Punjab	7,32,539	8,31,871	9,09,531	5,98,754	6,83,711	5,09,619	6,49,819	6,71,672	6,83,303	7,66,209	9,10,177	7,89,252	8,50,519	11,27,277	7,85,935	10,45,768	9,21,713	8,31,370	10,29,071	8,12,633	9,12,370	10,32,13	10,14,500	11,07,72	10,68,370
Burma (Lower)	10,68,621	10,71,872	17,79,02	15,51,108	16,03,082	11,37,562	11,80,190	15,16,613	22,31,804	25,03,896	25,09,275	16,70,967	20,23,859	19,95,097	22,18,897	26,09,306	31,31,716	26,77,671	28,58,114	35,83,37	31,89,350	32,74,20	34,14,55	33,18,27	40,85,200
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	1,08 071	2,95,878	15,79,928	18,06,970	16,14,297	13,21,302	20,76,63	22,95,75	21,02,59	22,81,28	25,6 ,68	31,29,050
Central Provinces	5,63,367	6,60,932	7,26,17	6,61,226	6,53,910	5,52,962	10,05,72	8,50,139	11,72,831	9,77,647	9,91,709	10,27,202	10,36,891	9,57,410	10,93,365	11,88,505	11,56,181	12,13,461	12,59,900	12,30,85	11,34,58	10,08,63	9,96,91	7,73,32	7,80,050
Assam	...	65,945	61,87	81,562	1,34,325	1,61,779	1,64,335	1,63,997	1,66,651	2,48,005	2,11,515	1,80,111	1,96,656	2,12,011	2,67,312	3,03,832	3,79,196	3,26,783	3,56,129	3,82,83	4,88,56	4,35,09	4,25,63	4,36,31	3,81,820
Coorg	1,10,281	58,915	1,07,50	75,967	1,01,015	52,023	1,01,786	87,857	1,09,361	1,39,022	87,822	1,13,233	89,396	80,291	1,27,028	1,36,182	92,753	1,35,561	1,82,897	1,80,68	1,73,79	1,53,05	1,35,25	93,60	1,30,910
Ajmer	201	202	81	805	3,002	1,211	1,861	1,121	1,065	7,126	8,198	10,150	9,697	11,271	11,269	13,571	11,592	15,266	19,729	14,69	14,62	12,94	15,61	12,27	15,540
Forest Surveys (Imperial)	...	...	21	...	...	63	35	272	...	319	30	235	222	251	46	315	220	2,101	257	53	21	8	51	40	220
Forest School	...	...	...	...	...	...	...	...	...	...	...	72	273	415	777	419	1,237	1,151	1,753	1,59	1,59	2,79	4,31	2,85	2,850
Andamans	4,181	5,516	5,263	4,675	1,301	5,564	2,152	27,731	18,597	70,858	24,762	12,213	23,944	31,870	1,05,662	1,05,075	3,62,196	1,58,326	2,72,338	3,69,190	4,41,79	1,14,53	1,32,12	3,62,370	4,33,710
Total	45,97,567	52,50,730	50,54,24	43,50,122	49,76,456	42,71,208	46,13,891	48,46,869	6 1,3,124	64,51,305	70,85,106	59,41,208	63,01,965	67,77,906	68,19,635	91,15,816	1,01,53,811	93,80,671	99,06,351	1,16,17,53	1,14,67,96	1,06,55,12	1,19,82,87	1,19,87,19	1,26,26,950
Madras	6,13,653	5,11,101	6,77,573	5,92,573	5,50,310	6,06,788	6,26,168	7,36,880	8,06,903	9,06,642	9,53,709	11,05,916	11,98,650	12,45,911	13,74,920	15,15,005	15,57,627	17,95,103	16,91,21	15,77,21	13,47,18	18,91,03	21,10,57	23,03,32	22,36,190
Bombay	11,83,679	12,21,05	12,48,572	12,26,655	12,61,523	11,81,894	15,21,732	15,22,807	18,28,117	20,90,353	25,03,100	27,71,812	33,05,286	30,32,676	30,32,572	28,50,190	21,27,696	22,83,220	22,84,64	32,09,55	37,91,35	37,50,63	35,36,67	39,32,710	26,16,600
Total (British India)	63,99,300	69,82,182	69,80,791	61,69,350	67,88,289	60,59,890	67,61,771	71,06,556	67,74,145	94,48,100	1,05,41,912	98,85,952	1,08,69,901	1,10,57,193	1,12,27,182	1,34,81,806	1,38,39,134	1,34,61,302	1,38,82,216	1,38,94,29	1,72,06,49	1,62,99,18	1,76,30,11	1,73,23,220	1,73,80,100
Berar	2,63,254	2,60,671	2,32,382	2,53,972	2,79,236	2,33,704	3,07,600	2,66,556	2,33,511	2,92,014	3,08,218	2,97,185	3,10,851	3,26,261	3,06,447	4,07,972	4,42,581	4,87,109	5,11,185	4,38,92	4,82,80	4,72,40	4 91,31	5,17,82	4,99,359
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	931	631	651	566	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	14,372	18,616	5,039	4,752	6,088	14,982	14,081	14,063	5,668	13,897	15,724	20,609	19,03	20,73	16,20	14,89	15,46	15,010
Grand Total	66,62,554	72,42,853	72,13,173	64,22,322	70,67,525	63,53,594	70,72,271	73,87,484	70,26,272	97,45,153	1,08,54,882	1,01,90,170	1,12,05,345	1,13,98,185	1,16,45,288	1,38,83,451	1,53,03,572	1,39,67,135	1,54,17,010	1,63,51,316	1,77,13,020	1,67,88,280	1,80,99,330	1,78,56,519	1,77,95,490

* The figures in this statement have been revised by the Comptroller and Auditor-General.
† Includes certain home receipts and undistributable and petty local items.

EXPENDITURE.

Provinces.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial* .	79,210	81,210	48,239	44,094	98,099	63,956	73,810	65,291	77,635	87,263	98,266	96,309	88,215	86,296	78,626	86,199	81,311	85,114	65,782	1,07,270	80,810	81,950	80,410	78,968	84,300
Bengal . .	1,39,274	1,01,361	1,42,676	2,14,497	2,62,913	3,38,675	2,75,718	2,25,381	3,91,612	3,82,153	3,87,813	4,11,915	3,70,399	4,22,781	3,90,363	3,76,270	3,98,150	4,14,001	4,22,930	3,81,619	4,01,040	3,97,290	4,66,076	6,90,040	6,57,140
North-Western Provinces and Oudh . .	11,90,794	10,61,302	7,26,979	8,61,362	7,28,926	8,09,977	7,16,591	6,79,571	9,16,212	8,39,025	10,41,825	10,20,161	9,71,519	9,19,580	8,33,718	8,14,541	9,63,151	9,19,195	9,58,211	9,28,540	9,63,020	9,36,310	9,42,860	9,05,310	9,17,850
Punjab . .	6,11,556	6,58,983	5,56,911	5,25,659	5,20,631	5,23,551	4,80,676	4,95,368	5,16,269	5,60,750	6,53,116	5,58,670	6,75,483	7,16,510	6,77,912	5,93,885	6,45,855	6,53,041	6,40,275	6,56,270	6,26,130	7,22,120	6,78,420	7,23,200	7,71,940
Burma (Lower)	4,75,301	6,63,517	8,15,659	10,85,551	8,58,231	7,18,102	7,53,190	7,12,568	11,58,221	12,28,955	12,17,824	12,12,233	11,50,952	10,75,830	10,32,691	12,31,911	13,22,811	10,86,571	13,25,121	13,63,250	13,41,610	13,78,230	13,57,710	15,60,290	16,01,110
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,55,129	2,73,800	3,02,385	3,73,859	4,11,750	5,20,860	5,30,760	5,75,960	6,25,530	7,92,500
Central Provinces . .	2,85,939	2,94,449	3,73,327	2,90,295	3,22,631	3,93,758	5,22,571	4,95,512	4,97,013	4,12,217	4,35,058	4,95,821	4,45,132	4,99,233	5,52,959	6,68,697	6,96,445	7,35,551	8,03,915	8,51,400	9,32,190	9,76,060	9,52,340	9,50,990	9,21,440
Assam . .	...	60,267	63,397	90,520	1,01,753	1,26,028	1,32,829	1,42,723	1,65,361	1,71,823	1,99,562	1,97,699	2,11,494	2,12,287	2,26,892	2,05,905	2,57,129	2,83,852	2,67,525	2,64,670	2,68,220	2,72,080	2,86,110	2,82,040	2,88,830
Coorg . .	45,952	37,999	40,168	33,692	36,263	31,829	55,165	56,487	59,796	61,770	75,023	76,951	65,690	71,668	72,629	81,175	72,420	65,818	86,860	73,090	86,850	86,140	85,940	71,630	87,020
Ajmer . .	17,852	15,281	21,346	22,460	14,928	13,515	13,750	12,423	13,951	11,231	14,571	16,316	16,469	20,714	18,897	15,678	12,701	12,720	13,936	15,600	15,900	14,970	15,730	22,010	16,070
Forest Surveys (Imperial) .	59,556	78,990	58,930	53,929	60,165	60,323	46,873	40,338	42,459	41,595	39,940	19,823	19,180	28,318	22,568	22,161	21,188	24,221	26,882	22,180	27,900	29,840	29,950	31,970	33,950
Forest School .	...	...	...	...	...	...	...	...	...	...	...	22,568	24,239	30,831	33,129	32,961	9,648	35,191	44,347	50,480	65,530	65,980	67,950	67,320	60,920
Andamans .	...	...	...	1,307	1,095	...	7,177	2,160	2,306	1,810	12,161	22,760	37,085	25,769	62,679	57,295	91,975	1,30,052	1,79,909	2,31,210	2,44,550	1,22,720	1,02,020	3,16,600	2,47,310
Total .	29,85,523	30,52,589	28,63,632	31,15,279	30,94,442	30,82,919	30,78,691	30,37,821	38,35,871	38,01,740	41,67,252	41,50,563	40,79,137	41,15,515	41,31,532	50,04,314	48,79,615	47,17,951	52,09,608	53,86,629	55,83,910	56,26,470	56,42,330	62,70,050	62,78,31
Madras . .	5,75,920	5,96,911	5,92,038	6,35,560	5,65,021	4,95,918	5,43,527	5,19,270	6,03,419	6,45,352	7,35,733	8,96,505	9,37,972	11,53,122	11,29,212	12,20,791	11,61,237	12,16,913	13,21,254	13,30,390	13,62,770	13,86,350	14,15,610	15,31,300	15,72,850
Bombay . .	7,21,591	8,95,675	7,91,141	8,38,979	8,77,716	10,04,923	10,76,989	11,67,247	11,69,181	12,78,770	15,64,172	17,78,723	18,39,461	19,52,916	19,44,605	16,93,962	17,70,691	18,69,837	19,31,457	19,01,970	20,71,940	20,67,920	19,58,390	19,69,160	20,73,190
Total (British India) . .	41,02,037	44,85,205	42,49,812	46,22,818	44,47,782	45,83,796	47,01,207	47,21,441	56,08,471	57,25,862	65,18,157	68,25,791	68,56,570	72,20,593	72,01,750	79,19,067	78,11,543	78,04,701	84,65,319	86,21,389	90,22,720	90,80,740	90,46,330	97,73,510	99,24,350
Berar . .	86,350	91,389	91,449	91,652	1,00,963	1,07,350	1,19,506	1,28,963	1,52,985	1,55,051	1,56,779	1,52,619	1,59,212	1,71,701	1,83,765	1,70,212	1,76,549	1,68,921	1,93,356	2,23,230	2,51,250	2,51,640	2,45,510	2,41,870	2,41,050
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	...	15,043	34,804	42,940	45,472	42,008	23,955	6,461	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	16,416	17,622	11,952	16,911	13,265	15,799	17,836	17,753	15,991	17,962	23,150	30,197	55,620	63,730	10,910	51,770	23,770	27,390
Grand Total .	41,88,387	45,76,594	43,41,261	47,14,470	45,47,750	46,91,146	48,14,713	48,69,820	57,79,128	58,92,871	67,06,890	70,26,510	70,71,551	74,55,602	74,43,266	81,29,761	80,12,515	80,63,125	86,94,182	89,06,239	93,40,700	93,73,290	93,33,610	1,00,45,150	1,01,65,730

* Includes pay of Inspector-General of Forests, certain home charges and undistributable and petty local items.

STATEMENT II—*concluded.*

SURPLUS.

Provinces.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial* .	−77,961	−80,066	−46,779	−41,513	38,673	−47,240	−56,596	−46,404	−50,222	−56,536	−65,359	−69,732	−73,537	−82,113	−73,779	−82,182	−76,552	−79,044	−59,100	−1,02,030	−78,160	−79,970	−77,720	−74,860	−65,170
Bengal . .	40,092	84,571	55,593	7,904	1,63,315	77,552	1,73,776	2,25,969	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,426	3,00,637	3,70,563	3,13,339	3,65,623	3,63,270	3,97,970	3,93,290	4,52,610	6,80,810	5,35,980
North-Western Provinces and Oudh . .	7,11,983	3,02,056	5,27,377	2,89,309	4,71,184	3,15,778	3,23,372	2,62,654	1,49,882	1,71,378	5,69,499	5,52,218	4,85,976	6,53,976	4,16,706	6,18,258	7,51,009	7,18,684	7,73,303	7,21,000	7,46,940	7,21,940	6,58,480	5,38,490	4,68,820
Punjab . .	1,20,983	1,75,891	3,32,920	73,095	1,63,083	−22,955	1,69,143	1,76,310	1,72,035	2,05,958	2,57,031	1,91,282	1,74,996	4,10,767	1,09,021	4,51,883	2,75,853	1,81,328	3,79,799	1,56,360	2,76,870	3,10,310	3,34,080	3,94,120	2,96,530
Burma (Lower)	5,83,317	4,11,255	9,63,361	5,15,854	7,44,852	4,19,163	4,26,700	8,01,045	10,81,580	12,74,911	12,91,451	4,58,739	8,72,907	9,22,837	11,86,203	13,77,361	18,01,872	15,91,791	15,32,993	22,20,120	21,47,710	18,95,970	20,56,810	22,14,980	26,82,090
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	...	1,05,381	1,75,721	7,91,796	15,32,270	13,41,982	9,53,141	16,31,820	17,71,890	16,22,820	17,05,420	19,35,150	23,36,560
Central Provinces . .	2,82,426	3,66,489	3,52,849	3,71,031	3,61,876	4,59,105	4,94,15	3,74,627	6,75,871	5,65,500	5,58,711	5,31,381	5,91,467	4,55,117	5,40,430	5,11,708	4,59,736	4,77,907	5,55,985	3,79,450	2,02,290	32,570	44,600	−1,77,670	−1,41,390
Assam . .	...	5,52	−1,527	−8,952	33,17	35,75	31,50	26,272	693	67,787	11,883	−17,28	−14,835	−276	40,420	93,977	1,22,369	42,941	68,601	1,18,760	2,20,280	1,63,080	1,38,890	1,54,430	95,990
Coorg . .	61,332	20,016	67,282	42,285	61,75	17,191	7,621	31,370	40,55	73,25	12,736	33,28	23,606	25,203	54,399	56,006	20,333	69,743	96,037	1,07,590	88,900	66,910	49,410	21,370	43,890
Ajmer . .	−17,628	−15,075	−26,936	−21,555	−11,921	−12,204	−11,889	−11,259	−9,889	−4,153	−6,376	−5,88	−6,772	−9,470	−4,604	−2,102	−1,109	2,516	5,813	−110	−1,220	−2,050	−90	−9,640	870
Forest Surveys (Imperial)	59,566	−78,090	−58,909	−58,929	−60,165	−60,262	−46,84	−40,063	−42,489	−41,247	−30,904	−19,58	−18,979	−28,107	−32,828	−21,819	−20,968	−22,220	−26,625	−21,610	−27,660	−29,760	−29,440	−31,570	−33,730
Forest School	...	...	...	...	...	...	...	...	...	...	...	−22,495	−23,966	−30,416	−32,352	−32,512	−28,409	−34,007	−42,559	−48,120	−63,510	−63,190	−63,610	−64,530	−58,020
Andamans . .	4,181	5,516	5,363	3,372	205	5,561	−4,740	25,573	46,101	69,018	12,001	−517	−13,091	6,101	41,383	48,780	67,220	28,274	92,429	1,29,220	1,97,240	−8,256	30,100	45,770	1,26,370
Total . .	16,92,041	11,98,141	21,90,615	12,01,859	19,72,012	11,83,259	15,35,202	18,09,045	23,02,25	26,49,565	29,17,856	17,93,641	22,25,829	26,63,338	26,88,152	41,14,769	52,74,198	46,32,720	46,96,743	56,61,510	58,79,950	50,28,650	53,01,540	57,17,140	63,48,640
Madras . .	1,38,733	−81,540	85,834	−42,987	−15,314	1,10,87	77,611	2,17,610	2,03,489	2,61,090	1,66,971	2,70,111	2,60,676	93,789	2,45,708	2,91,212	3,96,890	5,13,195	3,69,962	2,46,820	5,91,110	5,07,690	6,64,960	7,69,030	5,63,540
Bombay . .	4,66,496	3,87,376	4,54,531	3,87,679	3,83,812	1,76,971	4,47,723	3,55,460	6,58,936	8,11,583	9,38,928	9,96,119	15,26,825	10,79,766	10,88,572	11,56,228	13,67,005	14 18,333	13,53,192	13,64,590	17,22,410	16,82,110	15,78,280	10,63,550	15,13,470
Total (British India) .	22,97,272	15,03,977	27,30,979	15,46,542	23,40,511	14,76,104	20,60,567	23,82,115	31,65,67	37,22,238	40,23,755	30,60,171	40,13,331	23,36,913	40,22,432	55,65,209	70,37,591	65,99,548	64,19,897	72,72,910	81,86,770	72,18,440	75,44,780	75,49,720	74,55,750
Berar . .	1,76,906	1,69,285	1,41,282	1,58,420	1,69,268	1,81,354	1,96,991	1,37,588	80,526	1,36,960	1,51,439	1,14,536	1,36,606	1,54,562	2,22,682	2,37,765	2,63,892	3,18,189	3,12,819	2,01,790	2,28,550	2,21,760	2,48,830	2,75,950	1,56,300
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	...	−15,043	−33,870	−42,300	−44,821	−41,502	−23,955	−6,161	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	...	...	−2,040	931	−6,923	−12,159	−7,117	−837	−3,755	−3,690	−10,326	−9,055	−13,726	−9,888	−36,590	−43,000	−21,610	−26,840	−14,310	−12,2
Grand Total .	24,74,178	16,73,262	28,72,262	17,04,962	25,09,779	16,57,458	22,57,561	25,17,663	32,47,135	38,52,275	41,47,992	31,63,550	41,30,791	39,42,894	41,99,922	57,68,690	72,91,654	69,04,010	67,22,823	74,28,110	83,72,320	74,15,590	77,66,770	78,11,360	75,99,760

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

G. I. C. P. O.—No. 250 R. & A.—29-3 1900.—250.—J. W. G.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1898-99.

BY

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CHAPTER I.

EXTENSION AND ALTERATION OF THE FOREST AREA.

I.—Alteration in Area.

The alterations which took place during the year in the area of Reserved forests are shown in the following table :—

Province.	Area of Reserved Forests, in square miles.				Remarks.
	In 1897-98.	Added in 1898-99.	Excluded in 1898-99.	At close of 1898-99.	
Bengal . . .	5,880	1	...	5,881	
North-Western Provinces and Oudh.	3,851	169	15	(*a*) 4,005	(*a*) Includes 152 square miles of leased forests.
Punjab . . .	2,283	622	13	(*b*) 2,892	(*b*) Includes 343 square miles of leased forests.
Burma (Lower) .	7,373	307	1	(*c*) 7,679	(*c*) Includes 618 square miles of *taungya* areas.
Burma (Upper) .	7,333	695	40	(*d*) 7,988	(*d*) Includes 230 square miles of *taungya* areas.
Central Provinces .	19,206	166	442	18,930	
Assam . . .	3,590	...	53	3,537	
Coorg . . .	238	...	...	238	
Ajmer-Merwara .	139	...	...	139	
Baluchistan . .	170	35	...	205	
Andamans . .	120	37	1	156	
Total .	50,183	2,032	565	51,650	
Berar . . .	4,175	9	9	4,175	
Total Bengal Presidency.	54,358	2,041	574	55,825	
Madras . . .	13,775	1,219	106	14,888	
Bombay . .	13,281	158	4	(*e*) 13,435	(*e*) Includes the area of the leased forests in the Dangs, estimated at 679 square miles.
GRAND TOTAL .	81,414	3,418	684	84,148	

There was consequently an increase of 2,734 square miles in the total area of Reserved forests, as compared with an increase of 2,103 square miles in the preceding year. The largest additions were made in Madras, Burma, and the Punjab. The reclassification of forests in the Central Provinces led to the disforestation of a large area for cultivation purposes, and in Madras a considerable area was also abandoned.

The areas of all forest lands under the management of the Forest Department are given in the following statement:—

Province.		Forest Area in square miles.				Proportion of Forests to whole area of Province.	Remarks.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed State.	Total.		
						Per cent	
Bengal	153,148	5,851	3,816	4,033	13,730	8·96	(a) Includes 152 square miles of *leased* forests.
North-Western Provinces and Oudh.	106,149	(a)4,005	30	43	4,078	3·84	(b) Includes 343 square miles of *leased* forests, and excludes 122 square miles of Military Reserves and 6 square miles of Civil Reserves.
Punjab	110,785	(b)2,892	(c)2,472	2,119	7,484	6·75	(c) Exclusive of 131 square miles under the Civil authorities.
Burma (Lower)	83,557	(d)7,679	(f)	...	7,679	9·19	(d) Includes 618 square miles of *taungya* areas.
Burma (Upper)	77,210	(e)7,988	(f)	...	7,988	10·34	(e) Includes 230 square miles of *taungya* areas.
Central Provinces	86,461	18,930	...	185	19,115	22·11	(f) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The area of these undemarcated lands to which protection is afforded is not known.
Assam	41,330	3,537	...	16,673	20,210	48·84	
Coorg	1,532	238	657	...	895	56·57	
Ajmer-Merwara	2,646	139	...	(g)10	149	5·62	(g) Village lands managed by the Forest Department, but not yet brought under the Ajmer Forest Regulation.
Baluchistan	...	205	...	...	205	...	
Andamans	2,000	156	...	1,796	1,952	97·60	
Total	664,909	51,650	6,976	24,859	83,485	(h)12·52	
Berar	17,707	4,175	...	...	4,175	23·66	
Total Bengal Presidency.	682,616	55,825	6,976	24,859	87,660	(h)12·81	(h) Baluchistan left out of account.
Madras	141,259	14,888	...	4,706	19,594	13·87	(i) Includes the area of the leased forests in the Dangs, estimated at 679 square miles.
Bombay	123,048	(i)13,435	1,507	...	14,942	12·14	
GRAND TOTAL	946,923	84,148	8,483	29,565	122,196	(h)12·88	

Thus the total area under the control of the Forest Department was 122,196 square miles, or an increase of 2,425 square miles, as compared with the total area at the close of 1897-98. The increase was due chiefly to the reservation of 1,002 square miles in Burma, the addition of 990 square miles to the area of Unclassed forests in Assam, and to 378 square miles in the Angul District of Bengal having been declared Protected forests.

The details of the principal changes which occurred in the several provinces are given below:—

Bengal.—One square mile was added to the area of Reserved forests by a transfer from Unclassed forests in the Kurseong Division. Government lands estimated at 378 square miles were constituted Protected forests in the Sadar Sub-division of the Angul District, and one square mile was added to the Protected forests in the Palamau District by correction of area, while in the Sundarbans 23 square miles of the same class of forest were given up for cultivation.

North-Western Provinces and Oudh.—Sixty-four square miles of Protected forests were declared Reserved forests in the Naini Tal Forest Division of the Central Circle, and two new reserves in the Kumaun and Garhwal Forest Divisions were added with an area of 17 and 21 miles respectively. The increase of 54 square miles in the Oudh Circle is due to the addition of the Surai and Banbassa forests to the reserved areas in Pilibhit. Other changes are unimportant and due chiefly to the rectification of areas, and the disforestation of land required for railways.

Punjab.—The principal changes which have occurred during the year are—

In the Kangra Division the area of Reserved forests was diminished by 2,289 acres, and the area of Unclassed forests by 9,106 acres, owing to the correction of previous figures, whereas the area of Protected forests was increased by 28,385 acres for a similar reason.

In the Chenab Division 5,693 acres of *belás* were reserved by Notification No. 308, dated 25th July 1898.

In the Multan Division 19,894 acres were constituted Reserved forests by Punjab Government Notifications No. 27, dated 24th January 1899, and No. 179, dated 8th April 1899.

In the Shahpur Division 370,702 acres of Protected forests in the Bhera and Shahpur Ranges were constituted Reserved forests by Punjab Government Notifications Nos. 406 and 407, dated 11th October 1898.

Burma.—The reservation of forest areas continued to make good progress, 961 square miles being added to Reserved forests, of which 306 square miles were in Lower Burma and 655 square miles in Upper Burma after deducting 40 square miles lost by correction of areas in the Western Circle. At the close of the year the total area of Reserved forests was 15,667 square miles, of which 848 square miles are burdened with *taungya* privileges.

Central Provinces.—Regarding the examination and re-classification of the forests and the changes in area caused thereby, the Chief Commissioner remarks :—

"Good progress has been made in the Southern Circle, where all that now remains to be classified is an area of 941 square miles in Chanda. In the Northern Circle the classification has been delayed by various causes, but is now making good progress. There has been a large decrease, amounting to 383 square miles in the total area of Government forest, owing, chiefly to disforestations for raiyatwari purposes in Balaghat, Bhandara, and Seoni."

Assam.—The area of Reserved forests was reduced by 53 square miles, owing chiefly to disforestations in the Surma Valley for cultivation, and stood at the close of the year at 3,537 square miles. The area of Unclassed State forests is now estimated at 16,673 square miles, but this does not include the almost unlimited tracts of jungle in the hill districts of the province.

Coorg.—No change took place in the area of Reserved forests. A re-calculation of areas resulted in 8 square miles being added to the Protected ghât forests ; 608 acres of *paisaris* protected forest were given up for cultivation or building sites.

Ajmer-Merwara.—The area of Reserved and Protected forests underwent no change. A computation of the area of village forests resulted in a decrease of 655 acres.

Baluchistan.—An addition of 35 square miles was made to the area of Reserved forests by the reservation of the Gadibar forest at Anambar.

Andamans.—An area of 36·58 square miles in Middle Strait was reserved, whilst the Palargaon Reserve of 0·76 square miles was disforested, bringing the total area of Reserved forests to 156 square miles.

Berar.—No change took place in the total area of State forests, but some alterations were made in the areas of the various classes of forests by transfers and corrections. Regarding the re-classification of the free grazing area, the Resident remarks :—

"Final orders on this subject have now been passed, and the necessary action to give effect to them is being taken."

Madras.—The addition of 1,015 square miles of new reserves, together with the gain caused by the rectification of areas, made a net addition of 1,113 square miles to the area of Reserved forests, which stood at 14,388 square miles at the close of the year. The area of Reserved lands was reduced from 5,478 square miles to 4,706 square miles, chiefly by transfers to Reserved forests. The percentage on the 30th June 1899 of the Reserved area to the total unoccupied area, excluding zamindari and whole inam villages, varied from 75·77 per cent. in the Nilgiris to 2·54 per cent. in Tanjore, and averaged 37·87 per cent. for the whole Presidency, as compared with 37·21 per cent. on the 30th June 1898.

Bombay.—In the Northern Circle 153 square miles were added to Reserved forest and 124 square miles were excluded from Protected forests, owing to the settlement of the Shahpur Táluka in the Thána District. The changes in the other Circles were unimportant. Compared with the previous year there was a net increase of 30 square miles in the total forest area.

II.—Forest Settlements.

Considerable progress was made in forest settlement work during the year, especially in Madras and Burma, and resulted in a net increase of 2,734 square miles to the area of Reserved forests, as compared with 2,103 square miles in 1897-98.

The large increase in the Punjab was chiefly due to 579 square miles having been transferred from Protected forests in the Shahpur Division, but as

the intention is to bring the greater part of these lands under cultivation when irrigation becomes possible, the increase is only of a temporary nature. In Burma 1,002 square miles were finally settled as Reserved forests, and good progress was made in the settlement of proposed reserves and in the examination of other tracts with a view to their reservation. In the Central Provinces work was chiefly confined to re-classification and to the excision of areas for cultivation, and good progress was made in this direction in the Southern Circle. In Madras greater progress than usual was made, 1,015 square miles having been finally constituted Reserved forests; but much still remains to be done in this Presidency, where it is estimated that forest settlement operations will not be completed for another six years.

The following table shows the changes in area which took place during the year in the various provinces:—

Province.	Alterations in area, in square miles, during 1899-00.								Remarks.
	Reserved Forests.		Protected Forests.		Unclassed State Forests.		Total.		
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.	
Bengal	1	...	(a)379	23	...	1	380	24	(a) 1 square mile obtained by rectification of previous area figures.
North-Western Provinces and Oudh	(b)169	(c)15	(d)	(e)64	...	...	169	79	(b) 160 acres obtained by rectification of previous area figures.
Punjab	(f)622	(g)13	(h)18	(i)586	(j)19	(k)39	659	638	(c) 552 acres due to rectification of previous area figures.
Burma (Lower)	307	1	...	...	...	...	307	1	(d) 66 acres obtained by rectification of previous area figures.
Burma (Upper)	695	(l)40	...	...	...	...	695	40	(e) 66 acres due to rectification of previous area figures.
Central Provinces	(m)166	(n)442	...	...	1	108	167	550	(f) 3 square miles obtained by correction of previous area figures.
Assam	...	53	...	...	1,546	556	1,546	609	(g) 7 square miles due to rectification of previous area figures.
Coorg	...	...	9	1	...	...	9	1	(h) Obtained by correction of previous area figures.
Ajmer-Merwara	...	...	...	...	...	...	...	...	(i) 7 square miles due to rectification of previous area figures.
Baluchistan	35	...	...	...	...	...	35	...	(j) 14 square miles obtained by rectification of previous area figures.
Andamans	37	1	...	...	...	37	37	38	(k) 28 square miles due to rectification of previous area figures.
Net Total Increase or Decrease	1,467	...	...	238	825	...	2,054	...	(l) Due to rectification of previous area figures.
[illegible]	9	9	...	...	...	...	9	9	(m) 124 square miles obtained by rectification of previous area figures.
Net Total Increase or Decrease, Bengal Presidency	1,467	...	...	238	825	...	2,054	...	(n) 89 square miles due to rectification of previous area figures.
Madras	(o) 1,219	(p)106	...	...	(q)504	(r) 1,276	1,723	1,382	(o) 294 square miles obtained by rectification of previous area figures.
Bombay	158	4	...	124	...	...	158	128	(p) 105 square miles due to rectification of previous area figures.
Grand net Total, Increase or Decrease	2,734	...	...	362	53	...	2,425	...	(q) 32 square miles obtained by correction of previous area figures.
									(r) 43 square miles due to rectification of previous area figures.

The details of work done in the various provinces are as follows:—

Bengal.—The Paglajhora forest in the Kurseong Division, area 363 acres, was finally settled. The settlement of 842 square miles of proposed reserves in Chittagong was not completed as anticipated.

North-Western Provinces and Oudh.—The Local Government thus describes the progress made—

"During the year the settlement of 158 square miles was completed out of 177 under settlement in the Central Circle at its commencement, and the revision of settlement of 5 blocks of *khair* forest, with an area of 19 square miles, has been completed since its close. In the same Circle the settlement of a number of small blocks aggregating 10 square miles was taken in hand during the year, and proposals for the settlement of the whole of this area, except 9 small plots in Garhwál, have been made since the close of the year. The work done during the year in this Circle was, as Conservator points out, of an important character; and the Government concurs in his opinion that the results were satisfactory. The exchange of lands with the Khairigarh estate in Oudh has been actually effected, but the majority of the villages taken over have been placed under the Revenue authorities, owing to the existence in them of cultivation. The settlement of the remainder is still not finally disposed of, owing to doubts as to the correct area transferred. The areas shown in the forest maps did not agree with the areas calculated by the estate officials, and enquiries have been made with a view to having a fresh survey made by the Revenue Survey officers now employed in the Khori District.

"The question whether the forest policy followed in these provinces was fully in accord with the principles laid down by the Government of India in 1894 has been the subject of careful investigation in recent years, and has been examined in detail for each separate tract of forest land. In the majority of the districts concerned steps have been taken to bring the administration more fully into accord with the prescribed principles, and the Government has insisted on the observance of these principles throughout the provinces, though in some districts definite instructions on matters of detail have still to be issued."

Punjab.—Eight of the Chenab river *belás* in the Gujarat District were settled and constituted Reserved forests. Five square miles in the Multan Division, and four square miles in the Shahpur and Bhera range were undergoing settlement. The settlement of the Shahpur-Kandi tract in the Gurdaspur District was still pending at the close of the year.

Burma.—Good progress continued to be made in settlement work. Besides the final settlement and reservation of 307 square miles in Lower Burma and 695 square miles in Upper Burma, settlement enquiries were completed for 1,218 square miles of proposed reserves in the Pegu Circle, and for 280 square miles in the Western Circle. Extensive examinations were made in the Eastern Circle of Upper Burma with a view to the formation of new reserves. The question as to whether certain forests in the Pegu Circle were legally constituted reserves in the past has been referred to the Lieutenant-Governor, who is advised that those forests which were reserved according to the rules originally framed under the Government Forest Act, VII of 1865, or even the rules for the administration of forests in Pegu published in 1859, were legally constituted and continued as such in virtue of section 30 of the Burma Forest Act, 1881. But after the issue of the Revenue Department Notification of 1876, containing revised rules, by which notification was prescribed as part of the procedure of reservation, forests subsequently intended to be reserved were legally constituted only if they were so notified, which in some cases was not done.

Central Provinces.—In the Southern Circle 18 square miles were settled in the Seoni District, and one square mile in the Raipur District. Only two small areas were undergoing settlement at the close of the year. Little was done in the Northern Circle, and this is explained by the following extract from the Conservator's report:—

"The only areas that can now come under forest settlement in this Circle are (i) the very limited tracts of Unclassed forest that were inadvertently omitted from the wholesale reservations gazetted soon after the promulgation of the Indian Forest Act, (ii) Government forest land wrongly included in private estates, and (iii) small plots taken in exchange from private proprietors for one reason or another. Accordingly there is very little to report under this head: 0·838 square miles in two plots were reserved in the Saugor District, while three plots aggregating 0·842 square miles were still in hand from the previous year, and operations were commenced in one plot of 1·317 square miles."

Assam.—No areas were finally settled during the year. The settlement of the Lakhimpur, Mahur and Barail forests, area 184 square miles, was nearly completed. An area of [illegible] square mile was gazetted as a proposed addition to the Bengtol reserve in Goalpara. In Kamrup the Dudkhuri sal forest (147 acres) was gazetted as a proposed reserve, and about 7 square miles were under consideration. In Darrang 483 acres disforested in 1897 were re-gazetted as a proposed portion of the Charduar reserve, and 20 square miles were also gazetted as a proposed addition to the same reserve. An addition of 15 square miles to the Nowduar reserve was under consideration. In the Garo hills a small area of 68 acres was gazetted as a proposed addition to the Chima Bangabi reserve, and the examination of a large area of proposed reserves was nearing completion.

Coorg.—The Chief Commissioner remarks :—

"The settlement of the Protected forests, which has been pending since 1888, was taken in hand during the year under report. With the exception of a few valuable *paisaries*, which are to be reserved, the remainder will be disforested. The preliminary enquiry into these and the preparation of the record of rights in the *urudves* and *devarakadus*, which will remain Protected forests, will be completed within a few months."

Ajmer-Merwara.—A set of simple rules for the conservation and management of village reserves was prepared by the Commissioner, and was under the consideration of the Government of India at the close of the year.

Baluchistan.—The Gadibar forest was reserved as a State forest, and is free of all rights. No decision was arrived at regarding the proposed reservation of the Mazar, and a further portion of the Central Zarghun areas. In Lower Zhob the *chilgoza* tract of Porai, about half a square mile, was closed to felling.

Andamans.—The Middle Strait reserve of 36·58 square miles was finally settled during the year, and no areas were under settlement at the close of the year. An exploration survey around Stewart Sound was continued.

Berar.—No areas were under settlement during the year.

Madras.—Settlement work made greater progress than in the previous year, 1,015 square miles having been finally constituted Reserved forests, as compared with 652 square miles in 1897-98. The Madras Government thus sums up the work that remains to be done :—

"From the statements submitted by the Board, it would appear that 431 blocks, of a total area of 3,148 square miles, have been initially notified but not yet finally constituted Reserved forests; that there are 1,558 square miles of Reserved lands not yet brought under settlement; and that an area of some 652 square miles has been or is likely to be selected but has not yet been brought under the Forest Act. Thus on the whole an area of about 5,358 square miles remains still to be dealt with. At the present rate of progress the work of forest settlement may be estimated to take some six years more to complete."

Upon this the Government of India make the following remarks :—

"These prolonged operations will naturally add considerably to the cost of the legal settlement of the forest reserves in Madras, and the Government of India consider that it might be advisable that the position should be carefully examined; that a balance should be struck of all expenditure connected with forest settlements, including preliminary demarcation and preliminary surveys which form part of such operations; and that the average capital outlay on the legal constitution of State property per square mile should be ascertained.

"The Government of India presume that the 5,358 square miles which remain to be dealt with, have been examined by officers of the Forest Department and selected as of sufficient present or prospective value to warrant the capital outlay of transforming them into reserves. They will be glad of an assurance to this effect."

Bombay.—The settlement of the Shâhâpur Tâluka of the Thâna District was the most important work brought to a conclusion during the year. In the Central Circle some 1,405 acres within the boundaries of reserved forests were acquired by exchange or compensation. In the Southern Circle the settlement report of the forests in the Siddapur Tâluka was still awaited at the close of the year. Very little progress was made in Sind, where 33 square miles are in process of settlement, and a further area of 39 square miles has been selected as proposed reserves.

At the close of the year, apparently, 429 square miles were in various stages of settlement, of which 42 square miles had still to be notified under Section 4 of the Forest Act.

III.—Demarcation.

New demarcation work was carried out chiefly in Madras and Bombay, where forest settlements are being conducted on a large scale. In Burma excellent progress was made in the demarcation of new reserves, and in Bengal the boundaries of a large extent of Protected forests were laid down. [illegible] where work was on a much smaller scale, but a great deal of good work was done in improving and repairing existing boundaries. The demarcation of the Kangra forests in the Punjab still remains undone, and is chiefly accountable for the balance of work remaining in the Bengal Presidency.

The total length of boundaries at the close of the year was 147,104 miles, of which 100,264 miles were artificially demarcated. The total expenditure during the year on boundary work was R98,085.

following table shows the detail of the boundaries in the various provinces at e of the year 1898-99 :—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial mark.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
									On new work	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	₹	₹
Bengal . . .	.....	667	2,257	376	3,300	116	1,768	5,184	304	8,686
North-Western Provinces and Oudh.	Central Circle .	21	71	2,359	2,451	81	666	3,198	762	977
	Oudh „ .	51	73	1,122	1,246	10	333	1,589	6	1,332
	School „ .	17	271	400	688	91	352	1,131	427	1,114
	Total .	89	415	3,881	4,385	182	1,351	5,918	1,630	3,423
Punjab . . .	.....	333	1,373	9,569	11,280	4,350	1,196	16,826	2,714	3,545
Lower Burma .	Pegu Circle .	150	716	1,045	1,911	33	1,040	2,984	2,686	1,648
	Tenasserim Circle	18	1,153	1,190	2,361	10	608	2,979	17	2,740
	Total .	168	1,869	2,235	4,272	43	1,648	5,963	2,703	4,388
Upper Burma .	Eastern Circle .	142	764	1,236	2,142	110	75	2,327	1,308	4,817
	Western „ .	554	268	1,078	1,900	398	1,581	3,879	4,023	787
	Total .	696	1,032	2,314	4,042	508	1,656	6,206	5,331	5,104
Central Provinces .	Northern Circle .	274	8,564	2,968	11,806	580	1,358	13,744	785	1,149
	Southern „ .	18	10,462	1,121	11,601	136	1,123	12,860	102	3,466
	Total .	292	19,026	4,089	23,407	716	2,481	26,604	887	4,615
Assam . . .	.....	21	1,121	3	1,145	...	1,343	2,488	658	2,217
Coorg . . .	.....	...	23	259	282	...	15	297	5	515
Ajmer-Merwara . .	.....	...	61	193	254	...	158	412	...	202
Andamans . . .	.....	...	...	42	42	16	91	149	...	...
Baluchistan . . .	.....	31	56	216	303	...	77	380	6	...
Berar	.....	87	1,182	205	1,474	...	169	1,643	984	1,579
Total Bengal Presidency	.....	2,384	28,420	23,382	54,186	5,931	11,953	72,070	15,222	34,274
Madras Presidency .	Northern Circle .	678	1,697	3,783	6,158	1,269	603	8,030	7,885	5,414
	Central „ .	637	2,375	8,416	11,928	1,272	198	13,398	7,050	1,840
	Southern „ .	258	409	5,732	6,399	390	717	7,506	3,455	4,885
	Total .	1,573	4,981	17,931	24,485	2,931	1,518	28,934	[illegible]	12,139
Bombay Presidency .	Northern Circle .	226½	289½	2,153½	2,769½	1,606¼	329¼	4,705¾	8,11[illegible]	370
	Central „ .	692	678	14 615	15,985	6,052	877	22,914	5,791	1,655
	Southern „ .	600	10	267	877	14,359	637	15,872	2,115	10
	Sind „ .	45	1,583	383	1,961	...	556	2,517	...	...
	Total .	1,563½	2,610½	17,418½	21,592½	22,017½	2,399¼	46,009¾	16,025	2,035
	Grand Total .	5,520½	36,011¾	58,731½	100,263¾	30,879¾	15,870½	147,103¾	49,637	48,448

N. B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions, such as blocks, compartments and coupes.

The detail of the chief work in the different provinces was as follows.—

Bengal.—The delimitation of the boundaries of the Protected forests in the Palamau and Singhbhum Divisions resulted in raising the total length of boundaries from 4,011 to 5,184 miles, of which 3,300 miles are demarcated artificially.

In the above forests 657 miles of new boundary were demarcated by free labour supplied by the adjoining villages, and 10 miles of new work was carried out in the Singhbhum Reserved forest. The two cases of disputed boundary in Palamau remained unsettled.

North-Western Provinces and Oudh.—The acquisition of new reserves in Kumaun and Garhwal caused an increase of 86 miles in the total length of boundaries in the Central Circle, which stood at 3,198 miles at the close of the year, out of which 21 miles were demarcated during the year. In the Oudh Circle the re-demarcation of boundaries by numbered monoliths made some progress, and at the close of the year 87 miles of boundary remained to be thus improved. Ten miles still require demarcation in the Pilibhit Division. All forests in the School Circle are demarcated, and the 91 miles shown as still to be done refer to boundaries which it is proposed to improve by the digging of ditches or planting of aloe hedges; 17 miles of such work was completed during the year.

Punjab.—In Montgomery, trenches were dug along 234 miles of boundaries, and in the Chenab and Rawalpindi Divisions 45 and 38 miles, respectively, were demarcated.

A considerable amount of work was done in the way of repairing and improving existing boundaries.

The unsatisfactory state of the boundaries of the Kaghan forests was brought to the notice of the Local Government. At the close of the year the length of boundaries not demarcated was still very great, owing chiefly to 3,334 miles in Kangra remaining to be taken in hand.

Burma.—The demarcation of 864 miles of reserve boundaries was carried out, of which 554 miles were in the Western Circle, at a cost of R8,034; and 2,901 miles of previously existing boundaries were repaired for R9,492, exclusive of R276 paid for work done in the Eastern Circle in the previous year. The total length of boundaries requiring demarcation stood at 551 miles at the close of the year, most of which is in the Yaw Division.

Central Provinces.—In the Northern Circle 274 miles of boundaries were demarcated, of which 102 miles were due to the resumption of the areas encroached upon by malguzars in the Mandla District and nearly all the remainder to the demarcation of forest villages. In the Southern Circle only 18 miles were demarcated. No less than a total length of 19,026 miles of boundaries was repaired in the two Circles, the cost being R4,615.

Assam.—Disforestations led to the total length of boundaries being increased by 12 miles to 2,488 miles. The length of artificial boundaries was 1,145 miles, of which 21 miles were demarcated during the year.

Coorg.—Fair progress was made in the demarcation of the western boundary of the Ghât forests, a line 20 feet in breadth having been cleared for a distance of 23 miles at a cost of R388. Other work consisted of repairs to boundary marks and the erection of a few new ones.

Ajmer-Merwara.—No new boundaries were laid down, but the boundaries of forests surveyed during the year were improved by the erection of 130 new pillars and the repair of 640. In the Ajmer District there are a number of disputes to be settled regarding the boundaries of village lands, and the demarcation of cultivated plots enclosed in the forests in both districts awaits final sanction or has still to be taken in hand.

Andamans.—Owing to want of labour, no progress was made towards the completion of demarcation work, 16 miles remaining undemarcated at the close of the year.

Baluchistan.—The demarcation by 110 stone pillars of the new Gadibar forest was carried out, and existing boundaries were kept in repair.

Berar.—Rupees 984 were spent on the demarcation of 87 miles of boundaries of new State forests, A., B. and C., and R1,579 on the maintenance of old boundaries. The boundaries of class C. forests A. and B. are reported to be in good order, and those of class C. forests to have been improved in all divisions.

Madras.—Although less permanent demarcation work was carried out than in the previous year, considerable progress was made in this respect in the Northern and Central Circles. Altogether 1,573 miles of boundaries of settled reserves were demarcated at a cost of R11-11 per mile. No less than 4,981 miles of old lines were recleared, as compared with 2,804 miles in 1897-98, the average cost per mile being R2-7. The preliminary demarcation of 1,575 miles of boundaries of porposed reserves was also carried out.

Bombay.—The length of boundary newly demarcated was 1,563 miles, against 1,261

miles in 1897-98, most work being done in the Central and Southern Circles. Demarcation in the South Thána Division of the Northern Circle cost as much as Rs2 per mile, which is said to be due to the scarcity of stones which had to be collected and carried some distance. With the exception of 1,180 acres newly notified as a Reserved Forest, demarcation in Sind is reported to be finished. The length of boundaries remaining undemarcated in the Presidency was no less than 22,018 miles, of which 14,359 miles were in the Southern Circle.

IV.—Surveys.

During 1898-99 Forest survey operations were conducted in Madras by a double party, and in Bombay and Burma by single parties of the Survey of India Department, and No. 18 Party also completed the survey of some forest tracts in the Punjab.

The operations of the Forest Survey Branch were confined to the Central Provinces, the Punjab, Burma and Oudh. From the 1st April of the year under review No. 20 Party of the Survey of India Department, which is employed in Burma, was transferred to the administrative charge of the Superintendent, Forest Surveys. The total outturn of Forest surveys executed on various scales during the year amounts to 5,217 square miles, of which 2,257 square miles, on the 4 and 16-inch scales, were surveyed by the Forest Survey Branch for forest purposes, as well as an additional area of 953 square miles, on the 1-inch scale, to complete the standard topographical maps of the Chamba State. The areas surveyed by the Forest Survey Branch for forest purposes shows an increase of 520 square miles over that completed last year, and there is also a marked increase of forest areas reported as surveyed by the Survey of India Department.

The areas surveyed, on various scales, as well as the cost-rates of the several branches of the survey operations are tabulated in the following statement:—

AREAS SURVEYED AND COST-RATE PER SQUARE MILE.

Presidency or Province.	Triangulation.				Traversing.				Detail Survey and preparation of Maps on scale of 1"=1 mile.				2"=1 mile.				4"=1 mile.				8"=1 mile.				6"=1 mile.				Total Topographical Survey.		Total Expenditure, 1898-99.	
	1898-99.		1897-98.		1898-99.		1897-98.		1898-99.		1897-98.		1898-99.		1897-98.		1898-99.		1897-98.		1898-99.		1897-98.		1898-99.		1897-98.		1898-99.	1897-98.	Forest Surveys, Bengal Presidency.	Survey of India Department.
	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	R	Sq. m.	Sq. m.	R	R
North-Western Provinces and Oudh. *	...	...	...	...	...	...	(d) 184	7	...	...	...	...	...	...	...	...	...	...	77	39	...	...	...	...	...	...	...	...	...	77	(a) 3,758	...
Punjab *	267	12	580	9	(d) 380	4	...	...	953	8	200	20	...	...	...	...	100	41	52	51	...	...	...	...	...	...	...	...	1,053	252	(b) 16,726	...
Punjab	312	15	146	12	...	...	...	...	...	...	...	...	†260	53	...	...	52	100	146	108	...	...	...	...	...	...	...	...	312	146	...	23,760
Central Provinces *	825	6	1,233	7	(d) 54	24	...	...	...	...	...	...	...	...	...	...	1,454	39	902	41	...	...	...	...	326	(e) 39	236	(e) 41	1,780	1,138	(c) 82,451	...
Burma *	...	...	804	17	(d) 128	55	(d) 211	36	...	...	...	...	...	...	...	...	377	94	470	91	...	...	...	...	...	...	...	...	377	470	42,311	...
Burma	1,200	14	...	...	(d) 201	121	773	56	...	...	...	...	87	85	118	81	472	152	406	193	1	120	...	...	...	...	...	...	560	524	...	1,20,843
Madras	950	20	3,331	14	(d) 717	20	(d) 712	27	...	...	...	...	...	...	...	...	1,350	74	1,050	78	...	...	...	...	...	...	...	...	1,350	1,050	...	1,00,510
Bombay	230	18	718	8	166	11	(d) 164	17	...	...	...	...	...	...	...	...	429	53	444	60	254	137	204	179	55	123	29	155	738	677	...	69,288
Total: Forest Survey, Bengal Presidency.	1,092	...	2,617	...	562	...	395	...	953	...	20	...	...	...	...	...	1,931	...	1,501	...	...	...	...	...	326	...	236	...	3,210	1,937	1,45,246	...
Total: Survey of India Department.	2,692	...	4,195	...	1,084	...	1,649	...	...	...	...	...	247	...	118	...	2,303	...	2,046	...	255	...	204	...	55	...	29	...	2,960	2,397	...	3,14,401
Grand Total	3,781	...	8,812	...	1,646	...	2,044	...	953	...	200	...	347	...	118	...	4,234	...	3,547	...	255	...	204	...	381	...	265	...	6,170	4,334	4,59,647	

* Surveys executed by the Forest Surveys, Bengal Presidency, the topographical cost-rates of which include expenditure in classification of forests and soils. The other surveys are by the Survey of India Department.
† Sirmur forests.
(a) For printing and publishing Oudh maps.
(b) Includes drawing of Bashahr maps.
(c) Includes R3,351 on account of drawing and publishing maps of Raipur and Balaghat and the computation charges of Mandla
(d) Linear miles.
(e) Average cost of both 4" and 16" surveys.

INDIA
SHOWING THE ADVANCE MADE IN
FOREST SURVEYS
up to 30th June 1899
Scale 1 inch=96 Miles or 1-1000000
KASHMIR
AFGHANISTAN
BALUCHISTAN
RAJPUTANA AGENCY
BAY OF BENGAL
ARABIAN SEA
CHINA
SIAM
CEYLON
REFERENCES
REFERENCE
FOREST DIVISIONS

The foregoing statement shows that a total expenditure of R4,59,647 was incurred on account of Forest Surveys in India, against R5,03,198 in the previous year of 1897-98. The areas surveyed topographically by professional agency since 1873 and up to the close of the survey year 1898-99 are given in the following statement, and the map of India, which is attached, illustrates the progress of Forest Surveys:—

Survey year.	Bengal.		North-Western Provinces and Oudh.				Punjab.			Central Provinces.		Burma			Assam	Berar.		Madras.	Bombay.			By Forest Surveys, Bengal Presidency.	By Survey of India Department.	Total.
	Scale.		Scale.				Scale.			Scale.		Scale.			Scale.	Scale.		Scale.	Scale.					
	4″	2″	12″	8″	4″	2″	4″	2″	1″	16″	4″	8″	4″	2″	4″	4′	2″	4″	16″	8″	4″			
1873 to 1897-98. *	115	...	3	...	4,488	203	1,611	...	3,942	1,265	6,574	...	1,661	7	613	936	1,221	...	...	...	...	22,641	...	49,056
	537	215	...	215	494	...	1,344	...	...	...	4,831	...	3,752	1,381	...	...	...	7,316	269	2,575	3,488	..	26,415	
1898 to 1899 *	...	...	...	...	...	...	100	...	953	326	1,454	...	377	..	...	...	...	...	...	...	...	3,210	...	6,170
	...	...	...	...	...	...	52	260	...	...	..	1	472	87	...	...	...	1,350	55	254	429	...	2,960	
	652	215	3	215	4,982	203	3,107	260	(a) 4,895	1,591	12,859	1	6,262	1,475	613	936	1,221	8,666	324	2,829	3,915			
Total .	867		5,405				8,22			14,450		7,738			613	2,157		8,666	7,068			25,851	29,375	55,226

* Surveys executed by the Forest Surveys, Bengal Presidency. The other surveys are by the Survey of India Department, and the areas have been taken from a statement furnished by the Surveyor General and from Annual Reports of the Survey of India Department.

(a) Includes an area of 4,895 square miles on the 1″ scale for topographical purposes.

Excluding the 1-inch areas, which were surveyed purely for topographical purposes, the above statement shows that up to the year under review 50,331 square miles have been surveyed on various scales for forest purposes.

For the several provincial forest administration reports, maps were prepared by the Superintendent of Forest Surveys, showing the distribution of Government forest lands; these maps form a most useful addition to annual progress reports.

Survey work done in the various provinces during the year was as follows:—

Bengal.—No professional surveys were undertaken in Bengal, but a programme of operations to be undertaken by the Imperial Forest Survey Branch during the next ten years has been approved by the Government of India, and the Singhbhoom forests, which are considered of first importance, will be brought under survey during 1899-1900. Some petty surveys, in the Darjeeling, Singbhoom and Puri Divisions, comprising roads, coupe-lines and fire-lines, etc., were done by departmental agency at at a total expenditure of R606.

North-Western Provinces and Oudh.—In the Central Circle some 40 square miles of recently Reserved forests still remain to be surveyed, but until some pending questions regarding boundaries, rights and concessions have been settled it has been thought advisable to defer the survey of these tracts.

In the Oudh Circle, boundary surveys in the Districts of Pilibhit, Bahraich and Kheri, aggregating 611 linear miles, were completed by the Forest Survey Branch and added to the existing 4-inch maps, and the re-alignment of the Kheri-Nepal boundary was also completed and the maps submitted to the Local Government. For local requirements 27 published map sheets, on the 4-inch scale, were issued and 46 others are reported as being in progress. Some delay has occurred in issuing complete sets of the 4-inch maps. This is due to the incomplete state of the final demarcation of the forests with permanent boundary marks. In the School Circle some minor surveys were undertaken by local agency in the Jaunsar Division, comprising the filling in of roads, chaks, etc., on the 8-inch block maps, and various details in connection with the revised working-plan.

Punjab.—In continuation of the previous season's operations, a detachment of the Forest Survey Branch was employed in the Chamba State and completed detailed surveys for 100 square miles, on the 4-inch scale, at a cost of R41 per square mile, and 953 square miles, on the 1-inch scale, were also completed.

In the Montgomery District 380 linear miles of forest boundaries were traversed with

theodolite and chain. In Kangra, 22 blocks of Reserved and Protected forests, aggregating 52 square miles, were surveyed on the 4-inch scale by No. 18 Party at a cost of ₹5,260, or about ₹100 per square mile, and this Party also surveyed 78 forest blocks on the 2-inch scale in Sirmur at a cost of ₹53 per square mile, the latter forests are not administered by the Punjab Forest Department.

Burma.—In Lower Burma No 20 Party continued the survey of the forests located there, the work being carried on in the Pegu, Shwegyin, Thayetmyo and Rangoon Forest Divisions. The area surveyed comprised 472 square miles on the 4-inch scale at a cost of ₹152 per square mile, and 87 square miles on the 2-inch scale at ₹86 per square mile, the latter scale being employed for the Reserved forests which were surveyed to fill up gaps in the standard map sheets. The cost-rate for the 4-inch detail survey is said to be the lowest recorded by this Party as yet. On the 1st April 1899 No. 20 Party was transferred to the administrative charge of the Superintendent, Forest Surveys, and under the new organization it is hoped that still more favourable results will follow.

Three detachments of the Forest Survey Branch were also at work in Burma, *viz.*:—

i. In the Ruby Mines Division
ii. Pyinmana „
iii. Salween Attaran Division, Lower Burma
} Upper Burma.

and an area of 377 square miles of detail survey, on the 4-inch scale, was completed at a cost-rate of ₹94 per square mile. For the pressing requirements of the Department a number of boundary and other surveys were carried out by local Forest Officers. The necessity is recognized for pushing on forest surveys as the indispensable ground-work of working-plans for valuable forest areas, and the Government of India will endeavour to arrange that the outturn of work of future years shall be increased from 800 square miles to 1,000 square miles per annum at least.

Central Provinces.—Survey operations by the Forest Survey Branch were carried on in the Saugor Division of the Northern Circle and in five different forest divisions in the Southern Circle.

The areas surveyed in detail on the 4 and 16-inch scales were :—

Northern Circle	311	square miles.
Southern Circle	1,469	„
Total	1,780	„

The average cost-rate for this detail survey was ₹39 per square mile, being lower than that for the previous year, and the outturn of detail survey is also much better than in 1897-98, being 642 square miles in excess of the previous year. Three hundred and thirty map sheets on the 4-inch scale have been reported as published, 129 sheets were published during the year and 45 sheets are in the press. The Local Government remarks that "the maps were submitted with great punctuality and are of excellent quality." The areas remaining for survey are about 2,928 square miles in the Northern Circle and 1,370 square miles in the Southern Circle, the latter mainly in the Chanda District, and the former in Mandla.

Assam.—Some minor surveys were undertaken by the local Forest Department, comprising boundary surveys in the Kamrup, Nowgong and the Garo Hills Divisions, and apart of the Charduar rubber plantations was surveyed. It is anticipated that a detachment of the Forest Survey Branch will be available in 1902-03 to take up the survey of the more important forests in Assam, in accordance with the ten years' programme for forest surveys, which has been approved by the Government of India.

Coorg.—The only work done under the head of surveys was the survey of the Kudlur sandal area, which was done by local agency.

Ajmer.—An area of 22 square miles was topographically surveyed on the 4-inch scale, with boundary details for working-plans, and 2 miles of interior village boundaries were also surveyed by a surveyor of the Forest Survey Branch at a total cost of ₹524.

Baluchistan.—There is little to record under this head beyond the fact that the Chotiali forest, which is under consideration for reservation, is being surveyed.

Andamans.—Under head of surveys there is nothing to record.

Berar.—Some minor surveys were undertaken by local agency, such as roads and boundaries in the Ellichpur Division, and a small amount was spent on the revision of the Amdari map in Buldana, which was originally compiled from village maps.

Madras.—A double party (Nos. 9 and 19) of the Survey of India Department, which had been amalgamated into a single one last year and put under the charge of a single Imperial Officer, was at work in the Madras Presidency. The total area topographically surveyed

on the 4-inch scale was 1,350 square miles at a cost-rate of R74 per square mile. But from the Conservator's report it would appear that of the above area, only 986 square miles comprised Reserved forests. The results of the season's operations compare most favourably with those of previous years, the cost per square mile fell from R119 to R74, and this satisfactory result is ascribed to better organization. A large amount of survey work was also carried out by departmental agency.

Bombay.—Forest surveys were carried on as heretofore on three different scales by No. 17 Party of the Survey of India Department. The ordinary forest reserves were mapped on the 4-inch scale; the special teak reserves on the 8-inch scale; while small areas of *babul* reserves were surveyed on the 16-inch scale. Surveys on the two smaller scales were carried on in the Thána, Nasik, Kolaba and North Kanara districts, and on the 16-inch scale in the Ahmednagar and Sholapur districts. The total area topographically surveyed was 738 square miles, of which 429 square miles were on the 4-inch scale, 254 square miles on the 8-inch scale and 55 square miles on the 16-inch scale. The cost-rate for 4-inch work was about the same as for last year, while those for the 8-inch and 16-inch work are considerably less.

Sind.—There is nothing to record under head of surveys.

V.—Working-Plans.

Satisfactory progress was made in the preparation of working-plans in the Bengal Presidency, where 16 plans dealing with 3,939 square miles received sanction by Local Governments, as compared with 17 plans for an area of 2,964 square miles in 1897-98. In the Central Provinces the progress made was again excellent, and working-plans have now been sanctioned for a total area of 6,542 square miles, or 34 per cent. of the total forest area; the plans, however, in these provinces deal with large areas covered with a similar forest growth, and involve work of a less intricate nature than is usually the case in most of the other provinces.

In the North-Western Provinces and Oudh, where 85 per cent. of the total forest area is under working-plans, little remains to be done beyond the revision of existing plans as they fall due. In Burma 3 plans dealing with 297 square miles were sanctioned, and a good deal of preparatory work was carried out, but a vast amount of work remains to be done, especially in Upper Burma.

At the close of the year, out of a total forest area of 87,660 square miles in the Bengal Presidency, 20,348 square miles, or 23 per cent. were under sanctioned working-plans.

Little progress was made in Madras during the year, but, now that the time of Forest Officers will be less occupied by settlement work than in the past, it is hoped that the preparation of working-plans will proceed more rapidly. That there is an enormous amount of work to be done is shown by the fact of there being still no less than 17,884 square miles to be dealt with.

In Bombay working-plans have been sanctioned for only 1,319 square miles out of a total forest area of 14,942 square miles. Many other plans covering large areas are shown as completed or under preparation, but it is not clear from the reports how many of them are scientific working-plans and how many deal with areas simply divided into coupes on the ground, but for which no regular working-plans have been yet prepared or commenced.

The following tables show for the Bengal Presidency :—

(A)

Areas brought under the control of sanctioned Working-Plans up to 30th June 1899 in the Provinces of the Bengal Presidency.

Province.	Forest area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Square miles.	Per cent.
Bengal	5,881	3,816	4,033	13,730	4,437	32
North-Western Provinces and Oudh.	4,005	30	43	4,078	3,446	84·5
Punjab	2,892	2,473	2,119	7,484	2,504	33·5
Burma (Lower)	7,679	...	...	7,679	1,761	23
Burma (Upper)	7,988	...	...	7,988	116	1·5
Central Provinces	13,930	...	185	19,115	6,542	34
Assam	3,537	...	16,673	20,210	533	2·5
Coorg	238	657	...	895	145	16
Ajmer-Merwara	139	...	10	149	139	93
Baluchistan	205	...	...	205	...	...
Andamans	156	...	1,796	1,952	...	...
Berar	4,175	...	...	4,175	725	17·5
Total	55,825	6,976	24,859	87,660	*20,348	23

N.B.—For explanation of the figures in columns 2 to 5—see the remarks column of the area statement on page 2.
* At the beginning of the year this stood at 16,536, which was reduced by 30 square miles owing to correction, etc., during 1898-99, leaving 16,507, which added to 3,851 as newly sanctioned areas = 20,358 square miles, see table (C).

(B)

Progress made in Working-Plans in the Provinces of the Bengal Presidency during 1898-99.

Province.	Preliminary proposals submitted to the Inspector General of Forests for Working-plans.		Completed plans submitted for opinion and remarks of Inspector General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Sq. ms.		Sq. ms.		Sq. ms.
Bengal	1	110	2	195	1	12
North-Western Provinces and Oudh. Central Circle	...	...	1	(a)67	2	(b)159
Oudh "	2	(c)362	...	(d)2	...	(d)2
School "	...	...	1	68	1	68
Punjab	1	(c)169	...	...	1	1,511
Central Provinces, Southern Circle	5	1,799	7	1,320	7	1,561
Burma (Lower), Tenasserim Circle	2	423	2	218	2	218
Burma (Upper), Eastern Circle	...	...	...	...	1	79
Berar	...	...	1	(e)114	...	...
Coorg	2	(f)423	1	23	1	29
Total	13	3,286	15	2,012	16	(g)3,939

(a) Includes 28 square miles of old working-plan areas now being revised.
(b) Includes 84 square miles of old working-plan areas now being revised, leaving 59 square miles as the new areas treated of in the Naini Tal and Ranikhet plans; the balance 12 square miles represents the addition made to the Kumaun working-plan during the year.
(c) Old working-plan areas now being revised.
(d) Addition made to the Nawabganj para.
(e) This is a provisional working-plan for the Gi athori forests of the Akola Division which will now be made a permanent plan.
(f) Includes 13 square miles of old areas now being revised.
(g) The actual progress for new areas is 3,939—88 = 3,851 square miles.

(C)

Comparative Statement of progress made in Working-Plans during 1898-99.

Province.	Areas for which Working-Plans have been completed and sanctioned,		Areas for which Working-Plans are being compiled.		Area for which Working-Plans have still to be taken in hand.	Total forest area as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	
Bengal	(*a*)4,425	12	183	110	9,060	13,730	(*a*) Last year the area was 4,448 square miles, of which 23 square miles were transferred to the Civil Department for cultivation.
North-Western Provinces and Oudh. — Central Circle	(*b*)1,476	(*c*) 71	...	8	(*d*)343	1,898	(*b*) Area reduced by 1 square mile.
North-Western Provinces and Oudh. — Oudh „	(*e*) 1,104	(*f*) 2	(*g*) 136	...	·56	1,298	(*c*) Excludes 88 square miles of old areas of the Naini Tal and Ranikhet plans now revised and already included in column 2; but includes 12 square miles added to the Kumaun plan.
North-Western Provinces and Oudh. — School „	725	68	...	66	23	882	
Punjab	(*h*) 693	1,811	1,034	491	3,455	7,484	(*d*) This should really be 353 square miles, because working-plans for 10 square miles included in column 2 are for cantonment and municipal forests not included in column 7 (Naini Tal Cantonment, 1; Naini Tal Municipal, 2; Ranikhet Cantonment, 7).
Burma (Lower) — Pegu Circle	1,023	...	...	...	2,520	(*i*) 3,543	
Burma (Lower) — Tenasserim Circle	520	218	...	440	2,958	(*i*) 4,136	
Burma (Upper) — Eastern Circle	37	79	125	392	(*j*) 2,219	(*i*) 2,852	(*e*) Includes 78 squares miles of open forests dealt with in the Pilibhit plan, for which a new plan is under preparation. Last year the area was 1,106 square miles, of which 2 square miles have now been disforested.
Burma (Upper) — Western „	...	...	...	...	5,136	(*i*) 5,136	
Central Provinces — Northern Circle	1,537	...	6,541	8	(*k*)1,454	9,540	(*f*) Added to the Nawabganj plan during the year.
Central Provinces — Southern „	(*l*) 3,444	1,561	1,685	876	(*m*)2,009	9,575	(*g*) Excluding (*c*).
Assam	533	...	...	...	(*n*)19,677	20,210	(*h*) Last year the area was 694 (which includes 6 square mile for the Simla Municipal and catchment area forests working-plans); it has now been reduced by 1 square mile owing to correction.
Berar	(*o*) 725	...	...	...	3,450	4,175	
Coorg	116	29	33	...	717	895	
Baluchistan	...	...	...	...	205	205	
Andamans	...	...	...	...	1,952	1,952	(*i*) These are reserved areas only and exclude 2,941, 2,894, 13,864 and 14,099 square miles, respectively, of forests which have been afforded protection under the regulations as a preliminary to be reserved.
Ajmer-Merwara	139	...	...	...	10	149	
Total Bengal Presidency	(*p*) 16,497	(*q*)3,851	9,737	2,391	55,184	87,660	(*j*) This is actually 2,224, but owing to 5 square miles of unclassed forests being included in column 3, the area has been reduced to agree with the total area in column 7.
Madras Presidency.* — Northern Circle	20	3	791	159	6,037	7,010	(*k*) Marked out for disforestation; require no working-plans.
Madras Presidency.* — Central „	9	...	270	40	6,766	7,085	(*l*) According to last year's statement this should be 3,455, but during 1898-99 it was reduced by 11 square miles owing to clerical correction.
Madras Presidency.* — Southern „	107	...	43	268	5,081	5,499	
Madras Presidency.* — Total	136	3	1,104	467	17,884	19,594	(*m*) No plans are required for 1,610 square miles which have been excised for cultivation.
Bombay Presidency.* — Northern Circle	637	...	45	470	1,176	2,328	(*n*) Includes 16,673 square miles of unclassed forests for which working-plans are not required at present.
Bombay Presidency.* — Southern „	682	...	335	144	(*r*)4,077	5,288	(*o*) Area reduced by 1 square mile owing to correction.
Bombay Presidency.* — Central † „	...	...	3,853	407	2,004	6,264	(*p*) According to last year's statement this should be 16,536, but during 1898-99 it was reduced by 39 square miles owing to transfers and corrections —see (*d*), (*h*), (*r*), (*h*), (*l*) and (*o*).
Bombay Presidency.* — Sind „	...	...	186	184	692	1,062	(*q*) Excluding (*c*).
	1,319	...	4,469	1,205	7,949	14,942	(*r*) Includes 26 square miles of pasture reserves not to be organized.

* *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

† Not a single working-plan has as yet been sanctioned by Government, consequently the figures entered in columns 2 and 3 for 1897-98 have now been transferred to column 4.

Details of work done in the various provinces are as follows :—

Bengal.—The working-plan for the forests of the Tista Valley, comprising 12 square miles, was sanctioned during the year. A plan for the Jalpaiguri forests, 183 square miles, awaited the sanction of the Local Government, while one for 110 square miles of Reserved forests was under preparation in the Puri Division. At the close of the year the area remaining to be dealt with stood at 9,000 square miles, and the Government of India remark :—

"The Government of India concur entirely with the Lieutenant-Governor in thinking that many of the working-plans hitherto made in Bengal are unnecessarily elaborate, and they are of opinion that this is the chief cause for the slow progress made in the compilation of working-plans, which should be as simple and

practical as possible. They trust that such instructions will now be issued by the Local Government as will ensure that the matter is taken up with vigour and systematically prosecuted."

North-Western Provinces and Oudh.—The revised plan for the Naini Tal and Ranikhet forests, including 59 square miles of new areas, was sanctioned, likewise the addition of 42 square miles to the area brought under the provisions of the Kumaun working-plan. In the Oudh Circle an addition to the Nawabganj plan, dealing with 2 square miles, was sanctioned, a plan for the open forests of Pilibhit was nearly completed, and the plan for 136 square miles in the Gonda Division remained under preparation. In the School Circle a working-plan for the Tehri-Garhwal leased chir forests was sanctioned, and a revised plan for the forests in the Jaunsar Division was under preparation. It is considered that no working-plan is required at present for the Bundelkund forests, and the remaining areas to be taken in hand consist for the most part of forests recently brought under the administration of the Department, for which complete new plans are not required as they can be managed under the provisions of existing plans.

Punjab.—The working-plan for the Kulu forests was sanctioned. Plans dealing with a total area of 1,525 square miles were in different stages of progress at the end of the year.

Burma.—In the Tenasserim Circle working-plans for the Gwethè and Saing-Yanè reserves were sanctioned, likewise the plan for the Yenè reserve in the Pyinmana Division of Upper Burma. A large amount of preparatory work was carried out in the Eastern and Western Circles of Upper Burma, where linear valuation surveys were made, covering 2,871 and 809 acres, respectively, and a working-plan's party was engaged in the Toungoo Division of the Tenasserim Circle.

Central Provinces.—In the Southern Circle 7 working-plans for an aggregate area of 1,591 square miles were sanctioned, and in this Circle only 388 square miles in Chanda and Balaghat have still to be taken in hand; but in these areas the matter is of no immediate urgency, there being little or no demand on them. In the Northern Circle good progress was made towards the completion of plans for large areas, and although only two plans had been sanctioned up to the close of the year, all eight divisions of this Circle were under the *régime* of working-plans, several of which were on the point of being submitted for scrutiny and final sanction.

Assam.—Nothing was done towards the preparation of new working-plans. There was some improvement, compared with previous years, towards working up to the provisions of the plan for the Goalpara sal forests, but during the six years that the plan has been in force, only 10,064 trees have been felled out of the prescribed 30,549: departmental operations are impeded by the labour difficulty, and it is hoped that the use of a portable tramway will lead to an improvement in the working of these forests.

Coorg.—The working-plan for the Arkeri reserve, 29 square miles, was sanctioned, and plans for the Dubarè and Devamachi-Mawkal forests were recast and re-submitted for sanction. A plan for the Jainkal forests was under preparation, and the general lines to be followed in preparing a plan for the sandal-bearing areas were decided.

Ajmer-Merwara.—The Commissioner remarks—

"The provisions of the prescribed working-plan were carried out as far as practicable. Several units in Merwara could not be worked owing to their distance from the market. Moreover on account of the prevailing scarcity, villagers, in the vicinity of Beawar, took to cutting and selling wood from their private holdings, which lowered the price of the fuel, and did not permit of the forest fuel from distant working units being brought to and sold in the market at a profit."

Andamans.—A preliminary report on the proposed working-plan was under preparation, and was submitted after the close of the year, but it merely amounted to a plan of operations for five years.

Baluchistan.—Nothing yet necessary under this head.

Berar.—No addition was made to permanent working-plans. Provisional plans for 748 square miles were completed during the year, bringing the total area thus dealt with to 3,079 square miles; similar plans were in hand for the balance of 371 square miles.

Madras.—A preliminary working-plan for 3 square miles in the Godaveri District was the only addition during the year to the area under sanctioned plans. At the close of the year plans for 1,571 square miles were under preparation. The Government of India observe—

"Though, up to the end of the year under notice, no great progress has been recorded in the preparation of working-plans, the Government of India observe with satisfaction that, since the time of Forest officers is now less absorbed by forest settlements, special measures have been taken to bring the forest reserves under systematic management. The interest which the Government of Madras take in this logical development of their forest policy is a guarantee for rapid and healthy progress in this direction."

Bombay.—Although Form No. 50 for the Northern Circle shows that no new working-plans were completed during the year, the plan for the Sálsette and Kalyán Ranges in the South Thána Division was finally sanctioned, and the area covered thereby should have been shown

in column 3 of that Form. Plans were apparently being prepared for 515 square miles at the end of the year. Considerable progress was made in the laying out of exploitation coupes on the ground.

No working-plans for forests in the Central Circle have yet been sanctioned by Government, but it would appear that plans for considerable areas have been completed. Although plans are shown to have been undertaken for 4,260 square miles, it is doubtful for what area regular working-plans are under preparation, as the simple division of forests into blocks and compartments cannot be accepted as working-plans for those forests.

In the Southern Circle working-plans for 682 square miles in Kanara and Kolaba are shown to have been completed, and plans for 529 square miles were in hand, leaving the large area of 4,077 square miles still to be dealt with.

In the Sind Circle a working-plan for the Hyderabad division was completed, but not submitted for sanction during the year, and data were collected for plans in the Jerruck Division.

VI.—Communications and Buildings.

The total expenditure on roads, paths and bridges amounted to R1,47,600, as compared with nearly R1,73,000 in the previous year. The decrease took place chiefly under the head of new works, and was to a great extent due to a falling off in the North-Western Provinces, where a smaller expenditure was required on the Jaunsar export works, and in a lesser degree to that in Berar, Lower Burma, and Madras. The chief new work of the year was again in Madras, where R18,204 were spent on the construction of about 92 miles of cart-roads and bridle-paths, but a considerable amount of work was also done in Bengal and the North-Western Provinces. The maintenance of existing lines of communication cost R89,400, more than one-third of which was incurred in the North-Western Provinces, where the upkeep of 3,788 miles of roads and paths cost R31,470; while in Madras R20,400 were spent on repairs, chiefly in the Southern Circle.

On buildings a total expenditure of R2,49,700 was incurred, of which nearly R1,54,400 were spent on new buildings. Most of the new work was carried out in Burma, Madras, Bengal and the North-Western Provinces and Oudh, and in Madras the maintenance of existing buildings cost the large sum of R24,600. Considerable progress was made in most provinces in providing quarters for the subordinate establishment.

The following statement shows the expenditure on communications and buildings in the various provinces :—

Province.	New Work.		Repairs.		Other Works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	R	R	R	R	R	R
Bengal	23,433	10,205	11,146	8,902	4,081	57,767
North-Western Provinces and Oudh	20,111	9,080	15,569	31,470	7,975	84,205
Punjab	12,637	4,322	5,275	3,011	23,172	48,447
Burma (Lower)	15,685	1,193	5,947	2,053	2,138	27,016
Burma (Upper)	15,658	822	5,430	848	...	22,758
Central Provinces	6,053	1,360	5,995	2,333	401	16,142
Assam	12 533	3,373	8,789	2,860	1,582	29,137
Coorg	2,091	763	1,517	1,238	489	6,098
Ajmer-Merwara	37	517	50	80	115	799
Baluchistan	8	...	17	...	30	55
Andamans	1,908	1,629	455	1,261	...	5 253
Berar	4,371	3,104	4,988	5,664	1,432	19,559
Total Bengal Presidency	1,14,525	36,368	65,178	59,750	41,415	3,17,236
Madras Presidency	24,805	18,204	24,604	20,410	5,376	93.399
Bombay Presidency	15,027	3,606	5,576	9,255	387	33,851
Grand Total	1,54,357	58,178	95,358	89,415	47,178	4,44,486

The details of the most important work done in the various provinces were as follows :—

Bengal.—Fifty seven miles of new roads and paths were made, as compared with 67 miles in the previous year.

The bungalow at Khulna, head-quarters of the Sundarbans Division, was completed at a total cost of R8,250, of which R6,750 were expended during the year. The building of a bungalow at the head-quarters of the Sonthal Parganas was commenced and nearly finished (R6,418), and the reconstruction of the head-quarters' house at Chaibassa in Singhbhum was commenced (R2,322). The inspection bungalow and out-offices at Sivoke were completed for R682, the total cost being R2,109. An inspection bungalow was commenced at Chilapatha in Buxa, and various minor buildings were completed in the Kurseong, Tista, and Chittagong Divisions.

The total expenditure on buildings was R35,739, and on roads R19,230, as against R34,304 and R22,457 in 1897-98.

North-Western Provinces and Oudh.—One hundred and twenty-one miles of new roads and paths were constructed, but as no new works of great importance were undertaken and no disastrous floods occurred, there was a considerable fall in expenditure.

Several quarters for forest guards were constructed in the Central and School Circles, and a good deal of progress was made in the construction of rest-houses. The Local Government remarks—

"The opening out of the hill and submontane forests of the Central Circle will necessitate a larger outlay in future. In the School Circle the greater part of the expenditure was incurred in the construction of a bridge and a temporary tramway. At the instance of the District authorities steps have been taken in this Circle to meet the difficulties of the villagers in watering their cattle by furnishing the wells with cattle troughs. In the Central Circle the accommodation provided for forest guards is defective and unsatisfactory, but steps are being taken to provide proper housing for them gradually—a very necessary work, especially in the more unhealthy forests."

The total expenditure compares as follows with that of the previous year :—

	Roads.	Buildings.
	R	R
1897-98	55,987	49,636
1898-99	40,550	35,680

Punjab.—Ninety-seven miles of new roads and paths were constructed at a cost of R4,322, chiefly in the hill divisions, considerable progress being made in the Hazara, Kulu and Kangra Divisions in the construction of roads for rendering the forests more accessible and facilitating the transport of forest produce. The total expenditure on roads including repairs was R7,363 as compared with R6,864 in the previous year.

The expenditure on buildings was R17,912, showing an advance of R4,728 on that of the previous year; this was chiefly due to the construction of a bungalow at the head-quarters of the Chenab Division, and of a rest-house at Nathiagalli in the Hazara Division. Some progress was made in building quarters for forest guards, but much work remains to be done in the construction of suitable quarters for the subordinate establishment.

Burma.—In the Tenasserim Circle R2,351 were spent on improving streams in the Kabaung and Bondaung reserves of the Toungoo Division, and the Tavoy river. Thirty-one miles of inspection paths were constructed in the Toungoo Division for R425. In the Pegu Circle the clearing of streams by blasting in the Tharrawaddy and Thayetmyo Divisions cost R2,224, and 20 miles of paths in Prome were constructed at a cost of R358.

In Upper Burma in the Eastern Circle 78 miles of new roads and paths were made at a cost of R748, the most important of which was a new road 25 miles in length from Mozit to Nanmaw in the Bhamo Division. The Bombay-Burma Trading Corporation, Limited, are reported to have constructed 36 miles of temporary export roads, and to have spent R7,776 on the clearing of obstructions in creeks in the Pyinmana forests. In the Western Circle only R663 were spent on communications, the principal work being the improvement of the Sinlamaung Mansi bridle-path in the Upper Chindwin Division.

In the Tenasserim Circle a forest house was built at Zibyubin (R800), six inspection bungalows in reserves of the West Salween Division (R2,960), a rest-house at Chaunghnitkwa (R450), and some progress, chiefly in the Thaungyin Division, was made in providing quarters for the subordinate establishment. Rupees 3,134 were spent in completing or commencing the building of nine rest-houses in the Pegu Circle, and R4,226 on repairs.

In the Eastern Circle R6,704 were spent on the erection of the new buildings, of which the most important were rest-houses at Yanbo, Sepa-in, Naunge, and in the Petsut, Yeni, and

Myinbyin reserves. In the Western Circle the chief work consisted of additions to existing bungalows and the building of houses for subordinates; R3,954 were expended on new work and R1,714 on repairs.

Central Provinces.—Owing to financial pressure expenditure on communications and buildings was again kept as low as possible.

In the Southern Circle 21 miles of new cart-roads were made at a cost of R977, while R2,085 were spent on repairing 1,257 miles of roads and paths. Fourteen miles of new cart-roads were constructed in the Northern Circle for R383, and the repair of 89 miles of cart-roads cost R248.

In the Southern Circle 65 new buildings for subordinates were constructed at a cost of R2,495, of which the greater number consisted of huts for forest guards. Four range quarters were built in Bhandara, Chhindwara, and Raipur, besides 5 sub-range quarters, of which three were in Sambalpur. Rupees 557 were spent on the upkeep of wells, camping grounds, etc. In the Northern Circle R3,543 were spent on 51 new buildings, most of which were for the subordinate establishment, and repairs cost R2,717.

Assam.—New works in road-making were practically limited to changing two miles of bridle-path into cart-roads in the Charduar forest at a cost of R2,376, and the making of three miles of bridle-paths in the other forests of the Darrang Division at a cost of R430. A few bridges were constructed in the Goalpara forests at a cost of R490. Slight repairs to 175 miles of roads and paths in all divisions were executed at a cost of R2,860.

On new buildings a sum of R12,533 was expended, the principal new works consisting of the completion of the Kamrup Divisional Officer's bungalow at Gauhati, at an expenditure for the year of R3,422 (total cost of R6,988), and the completion of the Darrang Divisional Officer's bungalow at Tezpur at an expenditure during the year of R5,865 (total cost R8,526), the former to replace the bungalow destroyed in the earthquake of June 1897, and the latter to replace the building burnt in November 1896. A rest-house was completed at Kulsi (total cost R1,293), and two range quarters were built in the Sylhet and Nowgong Divisions.

Coorg.—Nine miles of the Mattigode-Murkal cart-road were completed (R456), and a bridle-path from Kootampolle to Nalknad, *viâ* the ghât forests, was commenced.

The rest-house at Murkal was completed at a cost of R2,850, of which R1,573 were charged to the year's account. Accommodation for two Foresters and four Guards was provided at a cost of R338.

Ajmer-Merwara.—Fourteen miles of forest roads were constructed at a cost of R517, and R80 were spent on repairing old roads and making temporary export paths.

The only new building was a hut for the mali of the Danta nursery; forest chowkies were kept in repair.

Baluchistan.—No expenditure was incurred on roads and paths, inspection-paths in the Quetta plantations being made by the forest establishment without extra cost.

A guard's hut was constructed at Kurbi Kach for R8, most of the work being done by the forest guards, and an addition was made to the quarters in the Dhobi Ghât plantation by the establishment.

Andamans.—Under communications R1,629 were spent, chiefly on the extension and improvement of the tramways, and the upkeep of the seven miles of tram lines cost R1,261.

The following new buildings were constructed—six barracks (R464), four Deputy Rangers' quarters (R79), two houses for police guards (R147), besides an elephant shed and various godowns and sheds. An inspection bungalow was completed at Jirkatang for R120, and R819 were spent on materials for a building at Wimberleygunj. The total expenditure on buildings, including repairs, amounted to R2,363 as compared with R595 in the previous year.

Berar.—Only 2¼ miles of cart-roads were constructed, the cost being R2,414, but 47¼ miles of bridle-paths were made (R690), of which 36¼ miles were in the Ellichpur Division. A sum of R5,398 was expended on the maintenance of 776 miles of cart-roads, and R266 on repairing 197 miles of bridle-paths.

Rest-houses were constructed at Rangobeli and Taura in Ellichpur (R2,018), and nine quarters for the subordinate establishment were built at various places for R2,853. The re-thatching of rest-houses, etc., was mainly responsible for a sum of R4,988 being spent on repairs.

Good progress was made in the construction of wells, 30 being made in the Melghat and one in Amraoti, but the greater part of the expenditure incurred thereon is paid by the Public Works Department and District funds.

Madras.—The total expenditure on roads and bridges was R38,614, as compared with R33,689 in 1897-98.

In the Northern Circle R14,737 were spent on roads, chiefly in Kistna, Godaveri and Kurnool, of which R9,085 were expended on the construction of 30¾ miles of new cart-roads. In the Central Circle R5,713 were spent, chiefly in North Arcot and Salem under new works, but the length of new cart-roads made in Salem is not given; in Cuddapah the repair of 2¼ miles of old cart-road cost R1,405. In the Southern Circle R18,164 were expended, of which R12,803 were on account of repairing 302 miles of cart-roads chiefly in Tinnevelly, the Nilgiris, Coimbatore, and North Malabar. Only 10 miles of new cart-roads were constructed in this Circle. Altogether in the three Circles 40 miles of bridle-paths were made at a cost of R3,109.

On buildings R49,409 were spent against R44,205 in the previous year.

The most important new works undertaken in the Northern Circle consisted of the construction of rest-houses at Tunikieheruvu, Narlakonda and Jeediguppa, in Godaveri, inspection camps at Bandlapenta and Dornal in Kurnool, and a rest-house at Rallapalli in Anantapur. The expenditure in the Central Circle was chiefly confined to repairs. A few rest-houses and tanna sheds were, however, constructed in Salem, North Arcot, and Cuddapah. In the Southern Circle a large outlay was incurred on buildings. In South Canara a rest-house was constructed at Kadike at a cost of R1,308. The chief works in North Malabar were the construction of a rest-house at Begur at a cost of R2,049 and of a shed for drying gum-kino at Mananthoddy for R400. The construction of a sandalwood godown at Kollegal in North Coimbatore and of a workshop for saw mill and peon's line at Mount Stuart and a chattram for coolies on the Anamalais in South Coimbatore formed the chief new works in the district. There were no works of importance in the other districts. Sundry works of construction and repairs were also executed in all the districts.

The Cuddapah tramway does not pay its way, and its removal to Nellore is contemplated. The Sriharikota tramway in Nellore carried a greater quantity of wood than in the preceding year, but there was a great falling off in the quantity carried by the tramways in South Coimbatore and the Nellore casuarina plantation.

Bombay.—The total expenditure on roads was R12,861, but no large works were undertaken for want of funds. Rupees 7,934 were spent on repairing cart-roads and paths in Kanara, Belgaum, and Kolaba.

In the Northern Circle two depôt houses were built at Kogde and Malyan (R1,350), and 24 posts for forest guards mostly in Central Thána (R1,830). The construction of a forest depôt in the Mahableshwar range (R1,127), of another at Virwada in East Kandesh (R900) and of 17 huts for forest guards (R425) was carried out in the Central Circle, while R850 were expended on the Langra Amba rest-house and R645 on an addition to the Range office at Dhulia. In the Southern Circle the principal new work consisted in building rest-houses in Northern Kanara on which R1,199 were spent, and in constructing quarters, costing R3,515, for the subordinate establishment in Kanara. In Sind several quarters were built for the subordinate establishment, and R1,851 spent on new works, as against R850 in the previous year.

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

Compared with the previous year there was an increase of nearly 970 in the total number of cases of breaches of the forest laws taken into the Courts; the increase in Madras was very great, and is attributed to the strengthening of the subordinate establishments, but there was a considerable decrease in Bombay. The percentage of convictions rose to over 83 per cent., but was much below the average in Bombay. The number of offences compounded in the Bengal Presidency remained much the same, whereas in Madras there was the very large increase of 2,376 in the number of cases so disposed of. The number of cases taken into Court and compounded in the various provinces are compared with previous year's figures in the following table:—

Province.	Number of cases disposed of by the Courts.		Number of cases compounded.		Total.		Proportion of convictions to the total number of cases decided by the Courts.	
	1896-90.	1897-98.	1896-90.	1897-98.	1896-90.	1897-98.	1896-90.	1897-98.
							Per cent.	Per cent.
Bengal	302	350	2,057	1,631	2,359	1,981	90·4	89·4
North-Western Provinces and Oudh.	130	125	415	411	575	536	89·2	80·0
Punjab	1,076	1,095	1,912	2,017	2,988	3,022	79·6	74·0
Burma (Lower)	465	322	1,461	2,084	1,926	2,406	81·3	80·4
Burma (Upper)	288	201	452	320	740	521	81·9	79·6
Central Provinces	235	275	4,207	4,184	4,442	4,459	78·7	77·8
Assam	82	77	248	196	330	273	82·9	77·9
Coorg	35	17	42	14	77	31	85·7	70·5
Ajmer-Merwara	369	112	332	148	701	260	95·1	94·6
Baluchistan	53	38	151	242	204	280	88·6	76·3
Andamans	...	5	...	...	...	5	...	60·0
Total	3,035	2,527	11,307	11,247	14,342	13,774	83·7	79·2
Berar	93	182	855	816	948	998	77·4	79·6
Total Bengal Presidency	3,128	2,709	12,162	12,063	15,290	14,772	83·5	79·2
Madras	5,697	4,474	10,070	7,694	15,767	12,168	86·8	85·4
Bombay	1,785	2,461	7,129	6,918	8,914	9,379	73·6	79·2
GRAND TOTAL	10,610	9,644	29,361	26,675	39,971	36,319	83·6	82·1

In the following table the offences are classified in accordance with their character:—

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				Grand total of cases.
	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	
Bengal	19	204	18	66	1	1,333	620	121	20	23	1	1	100	1,560	639	188	2,487
North-Western Provinces and Oudh.	23	177	25	13	12	389	152	23	74	295	6	1	109	861	183	42	1,195
Punjab	74	666	273	114	11	990	891	11	194	34	9	...	279	1,690	1,173	125	3,267
Burma (Lower)	5	403	2	33	6	1,007	12	495	...	7	...	...	11	1,417	14	547	1,989
Burma (Upper)	4	231	2	26	4	283	10	112	61	9	1	...	72	523	13	183	817
Central Provinces	116	67	38	24	120	2,455	1,516	38	342	145	3	...	578	2,667	1,557	112	4,914
Assam	1	74	1	17	1	215	1	31	8	1	...	1	10	293	2	49	349
Coorg	...	16	1	5	...	28	9	10	...	...	...	...	...	44	15	16	79
Ajmer-Merwara	...	238	74	7	...	220	91	21	1	106	23	...	1	616	188	28	833
Baluchistan	...	33	13	1	...	33	122	...	8	6	1	...	8	79	136	1	224
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	12	50	11	25	30	510	30	229	58	12	2	...	150	572	43	254	1,019
Total Bengal Presidency	254	2,212	461	335	238	7,503	3,154	1,141	826	642	46	2	1,318	10,337	3,964	1,539	17,158
Madras Presidency	31	2,910	2,467	418	4	3,057	4,619	389	169	1,295	843	91	213	9,072	8,161	915	18,295
Bombay ,,	128	893	366	271	128	3,517	2,968	490	2,168	1,396	990	...	2,425	5,802	4,324	845	13,396
Grand Total	413	6,011	3,297	1,064	371	15,977	11,271	2,020	3,103	3,213	1,884	205	3,887	25,231	16,452	3,289	48,859

As is usually the case, the majority of offences were those of unauthorized felling or theft of forest produce, 63 per cent. of which were compounded. The total number of cases of injury to the forests by fire was 3,887, of which Bombay was responsible for no less than 2,425, the Central Provinces for 578, and the Punjab for 279. It is to be regretted that no improvement in the detection of fire cases took place, 80 per cent. remaining undetected, or the same as in the previous year, but in Bombay, out of 2,425 such cases, 2,168 or 89 per cent. remained undetected.

II.—Protection from fire.

There was an increase of 561 square miles in the forest area over which special measures of protection against fire were taken, the total area standing at 32,265 square miles at the close of the year under review. The results were slightly better than in the previous year, and may be considered satisfactory, as 91·41 per cent. of the total area was successfully protected, the cost being ₹3,13,002 or ₹10½ per square mile protected. The details of the work done in the various provinces are fully shown in the following table :—

Province.	Area in square miles.				Proportion of failures to area attempted.		Cost.				Proportion of area under fire-protection to total area of forests (Leased forests included).	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.
					Per cent.	Per cent.	₹	₹	Pies.	Pies.	Per cent.	Per cent.
Bengal	2,089	1,933	2,052	1,424	1·77	27·09	6¼	7¼	1·8	2·3	15·21	14·60
North-Western Provinces and Oudh.	3,081	3,020	2,956	2,936	4·05	2·79	20½	21½	6·1	6·4	75·55	75·72
Punjab	356	400	335	371	5·90	7·25	18	13	5·4	3·9	4·76	5·38
Burma (Lower)	1,158	1,064	1,022	1,019	11·74	4·23	51	43	15·2	14·1	15·03	14·43
Burma (Upper)	1,999	1,000	1,425	737	28·71	26·30	22¼	19⅜	6·6	5·9	25·02	13·63
Central Provinces	5,460	5,948	5,072	5,712	7·11	3·95	9½	9½	3·0	3·0	28·56	30·50
Assam	1,204	1,204	1,202	1,134	0·16	5·81	7½	9	2·2	2·8	5·95	6·24
Coorg	204	204	195	177	4·41	13·23	30½	48½	9·2	14·6	22·79	19·95
Ajmer-Merwara	139	139	139	137	...	1·44	2	3½	0·5	1·0	100	93·29
Total	15,690	14,932	14,398	13,647	8·23	8·60	15¾	15¾	4·7	4·7	(a)19·28	(a)18·33
Berar	1,473	1,444	1,421	1,434	3·53	0·69	9¼	9¼	2·8	2·9	35·28	34·58
Total Bengal Presidency	17,163	16,376	15,819	15,081	7·83	7·90	15¼	15¼	4·5	4·5	(a)20·78	(a)19·61
Madras	5,126	5,321	4,941	4,985	3·61	6·31	7	7½	2 0	2·0	26·16	27·63
Bombay	9,976	10,007	8,732	8,697	12·47	13·09	4½	3¾	1·3	1·1	71·87	67·11
Grand Total	32,265	31,704	29,492	28,763	8·59	9 27	10½	10½	3·1	3·1	(a)26·88	(a)26·94

(a) Baluchistan and Andamans left out of account, as no special measures were taken for protection from fire.

The subjoined table analyzes the origin of the fires reported :—

Province.	(A) Fires caused by accident or through carelessness in burning fire-lines.		(B) Fires entering the forests by crossing exterior fire-traces.		(C.) Fires commencing inside the Reserve or Fire-traced Area.														Causes unknown.		Total of (A), (B) and (C).	
					Caused by workmen employed in the forests, by purchasers of forest produce and by grass-cutters, either accidentally or through carelessness.		Caused by villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		Caused by railway engines.		Caused by lightning or by fire-balloons.		Caused by intentional firing.									
													In order to obtain new grass.		In order to burn out game, or to reduce cover.		Through malice.		Total.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
Bengal	6	3,354	22	5,197	5	335	24	4,872	...	...	...	...	14	19,669	14	15,647	5	22	33	35,338	53	24,073	143	73,169
North-Western Provinces and Oudh. Central Circle	2	13	7	39	7	531	20	1,133	...	...	2	630	...	...	...	...	1	104	1	104	34	3,716	73	6,216
North-Western Provinces and Oudh. Oudh Circle	7	571	11	14,101	2	1,905	4	7,818	...	...	...	...	13	3,837	...	...	12	17,685	25	21,722	1	415	50	46,532
North-Western Provinces and Oudh. School Circle	3	149	3	6,177	3	491	2	31	...	...	2	4,344	...	...	...	...	1	17,216	1	17,216	...	...	14	28,433
North-Western Provinces and Oudh. Total	12	733	21	20,317	12	2,927	26	8,982	...	...	4	5,024	13	3,837	...	...	14	35,235	27	39,072	35	4,131	137	81,126
Punjab	13	724	49	9,666	21	452	63	2,018	...	...	12	9	96	13,108	2	39	13	3,584	111	16,731	42	2,259	311	31,859
Lower Burma. Pegu Circle	15	234	12	31,829	5	10,770	9	5,244	3	81	...	...	2	2,402	2	303	...	...	4	2,705	13	26,395	61	77,258
Lower Burma. Tenasserim Circle	2	869	5	1,025	2	984	7	4,084	...	...	...	...	...	...	...	...	3	2,420	3	2,420	1	500	20	9,882
Lower Burma. Total	17	1,103	17	32,854	7	11,754	16	9,328	3	81	...	...	2	2,402	2	303	3	2,420	7	5,125	14	26,895	81	87,140
Upper Burma. Eastern Circle	17	977	19	36,235	9	1,441	10	1,994	...	...	...	...	...	...	...	...	...	...	...	...	43	9,461	96	50,048
Upper Burma. Western Circle	8	20,941	12	76,417	2	58,240	3	23,360	...	...	...	...	...	...	...	...	1	6,400	1	6,400	14	131,837	40	317,295
Upper Burma. Total	25	21,918	31	112,652	11	59,681	13	25,314	...	...	...	...	...	...	...	...	1	6,400	1	6,400	57	141,298	136	367,393
Central Provinces. Northern Circle	37	41,777	85	153,889	22	9,606	120	76,946	14	1,915	3	344	4	3,602	4	1,845	10	2,407	18	7,854	197	349,700	506	642,031
Central Provinces. Southern Circle	12	1,816	54	47,445	5	3,695	19	36,886	...	...	2	912	...	...	1	60	13	2,853	14	2,913	30	39,030	136	132,697
Central Provinces. Total	49	43,593	139	201,334	27	13,301	149	113,832	14	1,915	5	1,256	4	3,602	5	1,905	23	5,260	32	10,767	227	388,730	642	773,728
Assam	3	2	5	1,092	...	...	1	300	...	...	1	fraction of acre.	...	...	...	...	1	1	1	1	3	53	14	1,453
Coorg	3	51	5	23	...	...	7	2,256	...	...	...	...	2	2,100	4	280	2	1,490	8	3,870	...	...	23	6,200
Ajmer-Merwara	...	...	...	...	...	...	...	...	...	...	1	1¼	...	...	...	...	...	...	...	...	1	1	2	2¼
Berar	6	1,255	9	8,262	3	967	36	3,792	...	...	2	128	...	...	...	...	1	923	1	923	5	21,151	62	36,478
Madras. Northern Circle	2	1,855	2	160	7	3,858	18	4,277	3	150	...	...	6	61	2	251	5	5	13	317	31	19,333	126	30,250
Madras. Central Circle	5	345	6	105	2	34	3	8	...	...	...	...	13	2,513	...	...	6	500	19	3,013	92	13,529	127	17,094
Madras. Southern Circle	7	132	20	67,140	5	413	22	580	...	...	1	50	36	4,654	2	300	25	1,234	63	6,238	28	1,259	146	75,812
Madras. Total	14	2,332	28	67,405	14	4,405	43	4,865	3	150	1	50	55	7,228	4	551	36	1,789	95	9,568	201	34,221	399	123,096
Bombay. Northern Circle	36	3,130	76	15,996	9	1,339	66	10,066	9	327	...	...	...	...	26	3,414	13	2,495	39	5,909	423	477,302	658	514,039
Bombay. Central Circle	31	7,178	138	27,323	10	1,609	511	86,665	20	1,138	...	...	9	900	19	13,681	36	5,777	64	20,358	234	117,505	1,008	261,776
Bombay. Southern Circle	4	61	38	2,495	1	1	67	18,780	13	539	30	593	14	3,220	4	533	1	15	19	3,968	507	67,543	679	93,980
Bombay. Sind Circle	1	150	3	610	7	2,591	42	1,431	11	509	...	...	17	3,560	...	...	5	236	22	3,796	5	157	96	9,230
Bombay. Total	72	10,519	260	46,394	27	5,513	686	116,945	53	2,513	30	593	40	7,680	49	17,628	55	8,523	144	34,031	1,169	662,487	2,441	879,025
Grand Total	220	85,691	586	505,093	127	99,365	1,064	292,534	73	4,659	56	7,061	226	59,826	80	36,383	154	65,647	460	161,826	1,807	1,305,101	4,393	2,461,6291

N. B.—In the case of Bengal, the Central Provinces, Punjab, Berar, Madras, the Southern Circle, Bombay Presidency, and Sind all forest areas burnt are included, whether specially protected or not.

This table shows that the total number of fires reported was 4,393, as compared with 4,051 in 1897-98. Of these fires the causes remained unknown in 1,807 cases, or in 41·13 per cent. Five per cent. of all fires were due to carelessness or accidents in burning fire-lines, in 13·33 per cent. the fires entered the forests by crossing exterior fire-traces, and 10·47 per cent. were attributed to intentional firing with a view to obtain new grass or to turn out game, or caused by malice.

III.—Regulation of Grazing.

The following table shows the area closed against grazing to all animals and to browsers only :—

Provinces.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,831	5,376	20	3,816	2,033	11	4,033	...	...	13,730	7,459	319
N.-W.P. and Oudh	4005	1,795	581	30	...	4	43	1	30	4,078	1,796	615
Punjab	2,892	538	529	2,473	47	70	2,119	30	217	7,484	665	816
Burma (Lower)	7,679	6,951	43	...	...	...	(a)...	...	...	7,679	6,951	43
Burma (Upper)	7,988	6,493	2	....	...	...	(a)...	...	...	7,988	6,493	2
Central Provinces	18,990	2,329	6,758	...	...	...	125	...	3	19,115	2,329	6,761
Assam	2,537	2,579	993	...	...	...	16,673	...	...	20,210	2,579	993
Coorg	238	159	...	657	...	...	...	...	...	895	159	...
Ajmer-Merwara	139	6	139	166 acres	106 acres	...	10	...	10	139	6	149
Baluchistan	205	145	....	...	...	...	...	...	...	205	145	...
Andamans	156	...	...	...	...	...	1,796	...	...	1,952	...	...
Berar	4,175	1,3161	90	...	...	...	...	...	...	4,175	1,3164	90
Total Bengal Presidency	55,825	27,707½	9,092	6,976	2,130	85	24,859	31	260	87,660	29,323½	9,437
Madras	11,883	Details not reported		...	...	...	4,706	Details not reported.		19,591	1,824	2,054
Bombay	13,435	Ditto		1,577	Details not reported		...	...	...	14,912	2,750	5,599
Grand Total	84,143	...	...	8,493	...	...	29,565	...	...	122,196	31,5021	17,090

(a) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied land generally. The area of these undemarcated lands to which protection is afforded is not known.

Compared with the previous year the areas closed to all animals in the Bengal Presidency were increased by 571 square miles, the most important increase being in Upper Burma. The area closed to browsers only was reduced by 93 square miles. In Madras the area closed to browsers only was reduced from 13,029 square miles in 1897-98 to 2,054 square miles, the chief reason being the admission of sheep to large areas that had hitherto been closed to them. The question of providing grazing for goats in Madras continues to be one of great difficulty, and schemes were under consideration for throwing open larger areas to these animals. At the close of the year under review only 9 and 18 per cent. of the total forest area in Madras and Bombay, respectively, was closed to all grazing, against 34 per cent. in the Bengal Presidency.

The number of cattle grazing at full and at privileged rates increased somewhat, although in the Punjab there was a considerable falling off in the number grazing at full rates, due to the giving up of forest lands to cultivation. In the Central Provinces there was a marked increase in the number of cattle grazing at full rates, and owing to the absence of a fodder famine a very great decrease in the number grazing free.

The total revenue realised was over R65,000 in excess of that of the previous year, an improvement being shown in all provinces except Bengal, Punjab, Coorg, and Berar. In the Punjab, there was a falling off of R32,000 and in

Berar of nearly R10,000. There was a decrease in the estimated value of free grazing, chiefly due to a decrease in Bombay of R1,27,000.

The amount of revenue realised in the various provinces from grazing dues, and that foregone by reason of free grazing, is shown in the following statement:—

Province.	Circle.	Amount realised.	Amount foregone.
		R	R
Bengal	...	20,728	94,711
North-Western Provinces and Oudh	Central	22,075	25,197
	Oudh	34,211	21,804
	School	18,043	7,878
	TOTAL	74,329	54,879
Punjab	...	54,094	2,42,472
Lower Burma	Pegu	1,585	4,283
	Tenasserim	...	3,256
	TOTAL	1,585	7,539
Upper Burma	Eastern	513	10,082
	Western	2,108	19,157
	TOTAL	2,621	29,239
Central Provinces	Northern	1,64,885	...
	Southern	1,66,533	1,068
	TOTAL	3,31,418	1,068
Assam	...	15,217	63,606
Coorg	...	1,674	1,675
Ajmer-Merwara	...	6,600	6,618
Baluchistan	...	378	9,891
Andamans	...	...	...
Berar	...	1,67,561	21,960
Total Bengal Presidency	...	6,76,205	5,33,658
Madras Presidency	Northern	1,41,636	9,530
	Central	1,87,735	512
	Southern	79,920	1,423
	TOTAL	4,09,291	11,465
Bombay „	Northern	5,452	2,12,880
	Central	1,67,686	2,58,552
	Southern	80,693	2,93,096
	Sind	55,126	33,726
	TOTAL	3,08,957	7,98,254
GRAND TOTAL	...	13,94,453	13,43,377

The following table shows the incidence of grazing in open forests:—

Province.	Circle.	Grazed on payment. Number of animals. At full rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Grazed free. Number of animals. By right under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	During pleasure of Government, or otherwise than under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	3,348	10,321	3,817	...	22	8,798	178,434	19,286	...	547	48,941	152,035	49,041	...	...	67	307	110	...	7
N.-W. P. and Oudh.	Central	21,140	65,708	3,525	179	576	2,301	14,003	65,545	...	2,976	9,915	59,407	7,045	...	417	3,465	9,678	40	...	50
	Oudh	17,614	52,692	3,664	...	40	23,654	92,505	9,021	...	63	2,809	18,525	...	...	...	1,226	3,873	524	...	55
	School	7,572	31,516	11,535	12,338	7,749	1,205	8,622	110	...	...	181	12,238	47,032	...	...	...	1,885	...	...	...
	Total	46,326	149,916	18,724	12,517	8,365	27,160	115,130	74,676	...	3,039	12,905	90,170	54,977	...	417	4,691	14,936	564	...	105
Punjab	...	18,463	74,580	393,354	2,397	829	3,105	17,172	225,795	120	76	145,620	626,024	567,280	265	10,181	1,886	8,110	63	...	34
Burma (Lower)	Pegu	627	850	...	...	...	...	...	...	...	...	3,956	3,940	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	3,325	335	25	...	13	...	...	...	...	...
	Total	627	850	...	...	...	...	...	...	...	...	7,281	4,275	25	...	13	...	...	...	...	...
Burma (Upper)	Eastern	176	283	...	...	12	...	...	...	...	...	393	10,352	...	...	...	3,249	...	...	...	682
	Western	40	...	...	...	...	...	...	...	...	...	...	7,534	...	...	...	...	...	...	...	...
	Total	216	283	...	...	12	...	...	...	...	...	393	17,886	..	...	...	3,249	...	...	...	682
Central Provinces.	Northern	141,756	714,941	47,945	2	737	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Southern	118,171	968,514	179,354	...	342	99	738	2	...	82	...	...	...	...	...	1,572	3,971	135	...	...
	Total	259,927	1,683,455	227,299	2	1,079	99	738	2	...	82	...	...	...	...	...	1,572	3,971	135	...	...
Assam	...	20,904	14,189	2,661	...	41	...	...	...	...	...	...	...	...	...	...	60,890	120,739	11,733	...	176
Coorg	...	544	3,929	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	4,076	...	...	...
Ajmer-Merwara	...	1,000	20,682	376	51	7,897	5,364	31,172	...	...	...	1,393	5,229	...	...	...	410	2,335	...	...	...
Baluchistan	...	106	1,718	705	...	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	...	92,657	488,468	240,608	40	1,730	1,339	11,284	38	...	3	23	86,722	...	...	...	125	7,549	...	...	...
Total Bengal Presidency.		444,618	2,448,391	887,544	15,007	19,975	45,865	353,930	319,792	120	3,747	216,556	984,842	687,975	266	10,835	72,890	162,023	12,605	...	1,004
Madras Presidency.	Northern	52,320	325,264	506,659	...	163	14,950	53,182	9,179	...	...	...	2,360	5,185	...	...	553	6,375	...	...	...
	Central	27,152	605,056	632,987	...	3	281	1,765	254	...	...	...	1,900	...	...	...	...	...	...	...	...
	Southern	21,599	275,375	69,667	...	236	...	4,004	...	...	...	2,008	...	...	...	...	25	304	...	...	...
	Total	101,071	1,205,695	1,209,313		402	15,231	58,951	9,451	...	...	2,008	4,260	5,185	...	...	578	6,679	...	...	...
Bombay Presidency.	Northern	2,047	10,257	...	...	...	1,142	7,611	...	...	...	13,172	89,267	...	...	...	47,782	225,102	2,797	...	...
	Central	6,689	34,061	163,553	...	2,630	37,011	249,298	32,970	...	...	...	...	...	...	...	11,172	99,288	3,378	...	5,479
	Southern	5,404	11,456	41,017	...	45	101,548	242,686	52,081	...	124	...	...	...	...	...	21,335	69,218	...	...	...
	Sind	53,145	77,154	389,047	8,825	939	9,972	23,175	30,916	932	74	4,589	18,767	...	...	573	404	1,072	388	26	930
	Total	67,285	132,928	593,617	8,825	3,614	149,673	522,770	115,967	932	198	17,761	108,034	...	...	573	80,693	394,680	6,563	26	6,409

IV.—Reproduction and Sylviculture.

The following tables show the increase in the areas of plantations, the money spent thereon in the various provinces, and the expenditure on cultural operations:—

Province.	Area, in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at the close of the year. Regular Plantations.	Taungyas.	Total.
Bengal	2,872	...	2,872	...	...	...	...	...	...	2,872	...	2,872
North-Western Provinces and Oudh.	3,119	...	3,119	...	...	...	...	...	...	3,119	...	3,119
Punjab	696	...	696	177	...	177	177	...	177	696	...	696
Burma (Lower)	3,536	(a)41,505	45,041	...	2,428	2,428	...	...	...	3,536	43,933	47,469
Burma (Upper)	132	1,146	1,278	...	200	20	...	3	3	132	1,343	1,475
Central Provinces	...	...	...	...	...	...	...	...	...	...	...	...
Assam	2,075	...	2,075	40	85	125	...	...	...	2,115	85	2,200
Coorg	2,214½	396	2,610½	5	131	136	...	...	...	2,219½	527	2,746
Ajmer-Merwara	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	25	...	25	5	...	5	...	...	...	30	...	30
Andamans	185	...	185	148	...	148	...	...	...	333	...	333
Berar	655	...	655	...	...	...	...	...	...	655	...	655
Total Bengal Presidency	15,509½	43,047	58,556½	375	2,844	3,219	177	3	180	15,707½	45,888	61,595½
Madras Presidency	32,226	...	32,226	815	...	815	2,363	...	2 363	30,678	...	(b)30,678
Bombay Presidency	11,972	...	11,972	5,462	...	5,462	908	...	908	16,526	...	16,526
Grand Total	59,707½	43,047	102,754½	6,652	2,844	9,496	3,448	3	3,451	62,911½	45,888	108,799½

(a) In the Review for 1897-98, 50,943 acres were shown as the area of taungya areas at the close of that year. Revised figures furnished by Local Government.
(b) Includes 10,178 acres of Topes.

	₹		₹
Bengal	632	Coorg	1,973
N.-W. P. and Oudh	914	Ajmer-Merwara	...
Punjab	913	Baluchistan	20
Lower Burma	63,894	Andamans	305
Upper Burma	4,054	Berar	...
Central Provinces	...	Madras	22,557
Assam	13,167	Bombay	10,357

Total ₹1,18,786.

	₹		₹
Bengal	7,736	Coorg	497
N.-W. P. and Oudh	3,175	Ajmer-Merwara	746
Punjab	4,825	Baluchistan	12
Lower Burma	4,938	Andamans	231
Upper Burma	1,190	Berar	1,179
Central Provinces	162	Madras	9,926
Assam	31	Bombay	11,499

Total ₹46,147.

CHAPTER III.

The total outturn of all forests under the control of the Forest Department in timber and fuel bamboos and minor forest-produce, with the average outturn per square mile, is exhibited in the following table :—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.							
										RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.	
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.
Bengal	19,779,326 (a)	10,002,216	1,26,895	13,285,251	1,511,447	1,51,482	804,051 (c)	5,201,131	3,653	3,333	1,701	21	1,792	1,190	10	150	1,537
North-Western Provinces and Oudh	14,566,953	12,287,951	2,46,801	370,929	33,925	2,291	5,900	22,325	933	3,637	3,068	61	12,361	1,131	110	737	519
Punjab	7,732,930	695,330	1,76,614	17,068,125	1,531	2,31,309	10,467,103	147,075	1,07,226	2,643	210	61	6,918	...	94	4,939	69
Burma (Lower)	2,404,053	6,265,009	17,916	16,513,215	23,715,000	93,183	...	...	...	311	857	21	(b)	(b)	(b)	...	...
Burma (Upper)	7,097,096	6,061,000	23,401	28,682,841	129,701,060	3,11,107	...	...	...	915	782	3	(b)	(b)	(b)	...	...
Central Provinces	14,792,022	99,783,935	4,67,931	...	...	...	15,933 (c)	903	511	231	1,936	21	...	...	...	36	5
Assam	1,201,577	1,257,618	22,220	...	...	...	18,431,170	24,815,558	3,56,711	310	359	61	...	...	...	1,165	1,138
Coorg	196,326	198,010	4,573	313,398	16,926	15,712	...	...	...	325	332	19	477 (c)	26	24 (c)	...	...
Ajmer-Merwara	231,370	9,056	26,338	910	...	131	1,290	...	1,534	2,006	85	275	8	...	1	123	...
Baluchistan	17,139	...	11,102	...	...	...	453,367	...	13	831	...	58	...	...	...	44	...
Andamans	1,291,157	142,288	252	...	...	...	694,231	516,701	2,430	8,276	912	14	...	...	...	386	287
Berar	1,923,851 (f)	2,730,619 (f)	2,50,672 (f)	...	...	...	...	...	...	462	654	54	...	...	...	...	...
Madras (g)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (h)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Excludes removals by purchasers from lands leased out for cultivation in the Sundarbans, and removals in drift from the Gandak river, estimated at 2,245,510 cubic feet, as against 2,140,546 cubic feet in 1897-98.

(b) Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation extends protection to certain trees and produce in unoccupied lands generally. The areas of these undemarcated lands, to which protection is afforded, is not known.

(c) Average outturn per acre.

(d) Area of unclassed forest not reported.

(e) Excludes outturn from lands given out for cultivation, estimated at 760,870 cubic feet, as against 2,350,257 cubic feet in 1897-98.

(f) Excludes produce removed under "ordinary concessions."

(g) The forests of the Madras Presidency yielded 16,034,210 cubic feet of timber and fuel, 20,031,017 bamboos, and R9,96,834 worth of minor produce. Dividing these figures by the 19,994 square miles of forests under the control of the Madras Forest Department, the average outturn per square mile was 819 cubic feet of timber and fuel, 1,398 bamboos, and R50 worth of minor produce.

(h) The forests in the Bombay Presidency yielded 33,904,923 cubic feet of timber and fuel, 7,733,390 bamboos, and R10,31,731 worth of minor produce. Dividing these figures by the 14,913 square miles of forests under the control of the Bombay Forest Department, the average outturn per square mile was 3,09s cubic feet of timber and fuel, 517 bamboos, and R69 worth of minor produce.

The amounts of forest produce removed by Government agency, contrasted with the amounts removed by Purchasers, were as follows :—

PROVINCE.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	155,753	5,991,003	93,229	16,327,427	15,440	15,950,404	107	1,55,688
N.-W. P. and Oudh	658,271	2,491,175	2,197,667	5,030,994	19,485	12,012,600	16,719	1,61,398
Punjab	1,215,923	716,017	4,940,266	1,063,363	597,124	246,312	5,262	1,69,286
Burma (Lower)	2,739,379	8,725,139	3,962	7,360,939	...	29,746,000	336	1,00,980
Burma (Upper)	1,169,724	16,075,714	4,990	4,626,431	1,000	25,917,000	3,234	1,80,460
Central Provinces	489,024	1,270,736	2,148,474	10,379,978	144,530	19,756,189	13,668	4,38,125
Assam	121,244	7,325,460	21,410	5,984,021	5,180	24,422,651	9,375	65,353
Coorg	41,086	362,420	12,148	89,370	2,000	203,610	248	18,362
Ajmer-Merwara	250	1,781	870	273,253	1,000	8,056	3,550	4,295
Baluchistan	630	4,477	13,122	451,826	...	...	29	901
Andamans	243,255	24,394	1,167,030	2,534	32,461	50,000	1,125	780
Berar	...	474,461	...	1,442,361	...	2,717,734	...	2,27,354
Total Bengal Presidency	6,824,536	43,463,074	10,603,168	53,032,560	818,220	131,031,056	53,683	15,23,192
„ Madras „	652,916	1,958,096	2,889,534	10,229,486	397,177	25,535,500	41,649	9,02,537
„ Bombay „	1,314,623	2,439,351	6,349,330	26,427,099	526,273	6,491,614	1,13,891	4,69,319
GRAND TOTAL	8,802,075	47,860,521	19,842,032	89,689,685	1,741,670	163,058,170	2,09,223	28,95,048

These figures compare with those of the previous year as follows :—

Agency by which produce was removed.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government	9,802,075	7,585,807	19,832,032	14,489,066	1,741,670	1,395,206	2,09,223	2,35,844
Purchasers	47,860,521	45,037,650	88,699,685	74,643,780	163,058,170	139,447,322	28,95,048	28,86.561
Total .	56,662,596	52,583,457	109,531,717	89,132,846	164,799,840	140,842,530	31,04,271	31,02,405

There was an increase of 4,079,139 cubic feet in the total amount of timber extracted from the forests, two-thirds of which were due to increased removals by purchasers, more especially in Assam and Bengal.

The total amount of timber extracted was 56,662,596 cubic feet, of which 28,700,253 cubic feet came from the forests of Burma. In Lower Burma the quantity of timber extracted by Government agency rose from 2,004,194 cubic feet in 1897-98 to 2,729,379 cubic feet in the year under review, and there was a considerable increase in the Central Provinces, Madras, Bombay and the Punjab, whilst in Upper Burma there was a falling off of 11,000 cubic feet. There was a considerable decrease in the amount of timber removed by purchasers from the forests in Bombay, Madras, and Upper Burma.

The very large increase of over 20,000,000 cubic feet in the outturn of fuel was in a great measure due to the demand for railway consumption in Sind, Bombay, showing a rise of nearly 9,000,000 cubic feet in the amount of fuel removed by purchasers; but there was also a considerable increase in the North-Western Provinces and Oudh, the Punjab, Bengal, Madras, and the Central Provinces.

The number of bamboos extracted from the forests rose to 164,800,000 or nearly 24,000,000 more than in the previous year, most provinces showing an increase in removals by purchasers. The total value of minor produce, including grass and grazing, was practically the same as in 1897-98, but under removals by purchasers the Punjab shows a falling off of over 1¼ lakhs of rupees, which was entirely under the head of grazing and was due to the abandonment of forests for colonization and to grazing leases not being sold owing to drought; on the other hand, there was a rise in Burma of over one lakh of rupees in the value of minor produce removed.

The most important details of the working and outturn in the various provinces are as follows :—

Bengal.—The following statement gives details of the forest outturn of the year :—

Class of forest, and agency by which produce was removed.	Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.
Reserved.	C. ft.	C. ft.	C. ft.	No.	R
Government . . .	80,964	81,597	162,561	7,152	105
Purchasers . . .	4,882,829	13,248,288	18,131,117	9,219,414	1,16,004
Free-grantees . . .	38,330	131,773	170,103	1,650	949
Right-holders . .	...	1,315,545	1,315,545	774,000	9,837
Total .	5,002,123	14,777,203	19,779,326	10,002,216	1,26,895

Class of forest, and agency by which produce was removed.	Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.
Protected.	C. ft.	C. ft.	C. ft.	No.	R
Government	26,957	3,775	30,732	5,060	2
Purchasers	628,697	3,011,044	3,639,741	535,087	31,047
Free-grantees	2,681	126	2,807	1,300	10
Right-holders	231,749	14,380,835	14,612,584	4,000,000	1,23,424
TOTAL	890,084	17,395,780	18,285,864	4,541,447	1,54,483
Unclassed.					
Government	47,332	7,857	55,689	3,228	...
Purchasers	479,477	68,095	547,572	6,195,903	8,637
Free-grantees	790	...	790	2,000	1
Right-holders	...	...	...	...	...
TOTAL	528,099	75,952	604,051	6,201,131	8,638
Grand total in 1898-99	6,420,306	32,248,935	38,669,241	20,744,794	2,90,016
Ditto in 1897-98	4,904,846	30,128,991	35,033,837	19,827,312	2,74,606
Difference in 1898-99	+1,515,460	+2,119,944	+3,635,404	+91,482	+15,410

* Includes R982 collected from Hill Tippera.

The Local Government remarks—

"The gross outturn under all heads was, therefore, much greater than in the previous year, and the increase was shared by all the divisions except Kurseong, Tista, and Direction. The increase in the Sundarbans was very noteworthy, the timber and fuel exceeding that of the previous year by 2,661,161 cubic feet, and minor products being much more profitable. In the Chittagong Division also the careful supervision of Mr. Stebbing resulted in a great advance being made."

North-Western Provinces and Oudh.—The following table compares the total output of the forests in the three Circles during the year with that of the preceding year:—

Circle.	1897-98.	1898-99.	Difference.
	Timber.		
	C. ft.	C. ft.	C. ft.
Central	1,235,000	1,311,000	+76,000
Oudh	1,726,000	1,654,000	—72,000
School	866,000	1,121,000	+255,000
TOTAL	3,827,000	4,086,000	+259,000
	Firewood.		
	C. ft.	C. ft.	C. ft.
Central	3,334,000	3,685,000	+351,000
Oudh	2,947,000	5,175,000	+2,228,000
School	1,209,000	1,998,000	+789,000
TOTAL	7,490,000	10,858,000	+3,368,000
	Minor produce.		
	R	R	R
Central	1,43,806	1,74,458	+30,652
Oudh	81,606	91,378	+9,772
School	58,946	65,370	+6,424
TOTAL	2,84,358	3,31,206	+46,848

The increase in the outturn is thus explained in the Local Government's Resolution on the reports—

"The feature of the year is the revival in the timber trade in the School Circle, where the outturn in the Jaunsár Division of timber removed by purchasers was double that of the previous year. The recovery of the people from the effects of famine, and the absence of plague, also account for the increased output of timber, of fuel and of minor products in the Central Circle. In Oudh the principal variation was in the outturn of fuel, which increased by nearly two and a quarter million cubic feet. The increase is chiefly due to the larger quantities removed by purchasers, in whom are included persons allowed to take fuel at privileged rates. In the Central Circle the increased output of fuel is due to the cutting of a coppice *coupe* departmentally, and to sales of firewood from the railway clearing in Dehra Dún."

Punjab.—The following statement gives a summary of the produce removed from the forests during the year under report, as compared with the figures of the previous year:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft. solid.	No.	R	R
Government	1,215,923	4,940,266	597,124	577	4,685
Purchasers	716,017	1,063,263	246,812	1,58,089	11,197
Free-grantees	12,472	53,619	...	7,415	13
Right-holders	1,293,480	26,002,118	...	2,85,365	50,808
TOTAL FOR 1898-99 .	3,237,892	32,059,366	843,936	4,51,446	66,703
Total for 1897-98 .	2,927,857	29,715,780	845,266	5,67,671	65,142

The number of deodar trees extracted from the hill forests of Hazara, Chamba, Kulu, and Bashahr by Government agency was 10,109, as against 9,804 in the previous year, and the number of pine and other trees was 1,184 as compared with 629. The following statement shows that the exploitation of pine timber increased considerably:—

Year.	Removed by Government Agency.				Removed by Purchasers.			
	Deodar.	Pine.	Other timber.	Total.	Deodar.	Pine.	Other timber.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
1897-98 . .	1,063,786	54,040	7,308	1,125,134	17,298	513,297	79,313	609,908
1898-99 . .	1,105,755	97,431	12,737	1,215,923	18,331	652,567	45,119	716,017

The Conservator of Forests, after referring to the efforts being made to increase the utilisation of the pine forests, remarks—

"With regard to the impregnation of pine timber a separate report has been furnished. It is impossible with the present reduced controlling staff to launch out into new enterprises of such magnitude. If the Railway management or private firms would undertake the establishment of one or more centrally placed factories, the Forest Department and other forest proprietors could easily supply timber enough to keep the factories at work."

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

Burma.—The outturn of the year is analyzed by the Local Government in the following tables:—

Class of forest, and agency by which produce was removed.	Timber.					Fuel.					Total (timber and fuel).
	Tenasserim Circle.	Pegu Circle.	Eastern Circle.	Western Circle.	Total.	Tenasserim Circle.	Pegu Circle.	Eastern Circle.	Western Circle.	Total.	
Reserved.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Government	89,629	1,898,853	399,145	10,339	2,397,966	...	...	...	...	...	2,397,966
Purchasers	152,631	259,931	4,976,412	299,243	5,688,217	...	1,914	438,650	...	440,564	6,128,781
Free grantees	350	...	5,095	36	5,481	...	...	...	...	...	5,481
Right-holders	1,260	...	84,273	258,795	344,268	2,550	...	584,150	40,958	627,658	971,926
Total	243,810	2,158,784	5,464,925	568,413	8,435,932	2,550	1,914	1,022,800	40,958	1,068,222	9,504,154
Unclassed.*											
Government	478,649	262,248	609,804	150,436	1,501,137	...	3,962	1,240	3,750	8,952	1,510,089
Purchasers	3,695,299	4,617,578	6,569,671	4,230,185	19,112,938	2,368,989	4,990,036	3,286,525	901,256	11,546,806	30,659,739
Free grantees	12,568	35,430	126,015	3,070,113	3,244,066	...	...	...	5,695,146	5,695,146	8,939,212
Right-holders	48,516	...	8,500	...	57,016	...	...	...	...	...	57,016
Total	4,234,972	4,915,256	7,314,190	7,450,734	23,915,157	2,368,989	4,993,998	3,287,765	6,600,152	17,250,904	41,166,056
Grand Total, 1898-99	4,478,782	7,074,040	12,779,115	8,019,147	32,351,089	2,371,539	4,995,912	4,310,565	6,641,110	18,319,126	50,670,210
Grand Total, 1897-98	4,724,889	6,204,393	13,446,084	7,582,071	31,957,437	3,241,894	4,519,433	4,170,571	14,197,486	26,129,384	58,086,821
Difference + or — in 1898-99	—246,107	+869,647	—666,969	+437,076	+393,652	—870,355	+476,479	+139,994	—7,556,376	—7,810,258	—7,416,611

* Afforded protection under Chapter IV of the Act and of the Regulation.

Class of forest, and agency by which produce was removed.	MINOR FOREST PRODUCE.														
	BAMBOOS.					GRASS AND GRAZING.					OTHER MINOR PRODUCE.				
	Tenasserim Circle.	Pegu Circle.	Eastern Circle.	Western Circle.	Total.	Tenasserim Circle.	Pegu Circle.	Eastern Circle.	Western Circle.	Total.	Tenasserim Circle.	Pegu Circle.	Eastern Circle.	Western Circle.	Total.
RESERVED.	Thousands.	Thousands.	Thousands.	Thousands.	Thousands.	R	R	R	R	R	R	R	R	R	R
Government	...	...	...	...	...	...	...	...	...	...	...	336	79	3	418
Purchasers	576	5,456	2,515	586	9,133	...	1,585	513	...	2,098	1,917	4,304	3,713	4,159	14,093
Free grantees	...	50	25	...	75	...	...	7,407	...	7,407	...	1,289	...	...	1,289
Right-holders	57	26	741	2,197	3,121	3,256	4,283	2,675	1,536	11,750	719	287	2,382	934	4,322
Total	(a) 733	(b) 5,532	(c) 3,281	(d) 2,783	12,329	3,256	5,868	10,595	1,536	21,255	2,636	6,216	6,174	5,096	20,122
UNCLASSED.*															
Government	...	...	...	1	1	...	...	...	...	...	...	...	...	3,152	3,152
Purchasers	2,072	21,642	10,090	12,726	46,530	...	...	...	...	...	20,274	72,909	1,30,285	41,900	2,65,158
Free grantees	...	...	63	1,06,824	1,06,887	...	...	...	1,12,249	1,12,249	...	...	78	23,431	23,509
Right-holders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	(e) 2,072	(f) 21,642	(g) 10,153	(h) 1,19,551	1,53,418	...	...	...	1,12,249	1,12,249	20,274	72,909	1,30,363	68,573	2,93,119
GRAND TOTAL IN 1898-99	2,805	27,174	13,434	1,22,334	1,65,747	3,256	5,868	10,595	1,13,785	1,33,504	22,910	79,125	1,36 537	73,669	3,12,241
GRAND TOTAL IN 1897-98	4,169	22,712	10,788	1,19,426	1,57,095	3,243	1,789	10,108	1,10,092	1,25,232	19,563	16,822	96,178	78,699	2,11,262
Difference + or — in 1898-99.	—1,364	+4,462	+2,646	+2,908	+7,652	+13	+4,079	+487	+3,693	+8.272	+3,347	+62,303	+40,359	—5,030	+1,00,979

* Afforded protection under Chapter IV of the Act and of the Regulation.

	R		R		R		R
(a) Value	1,833	(c) Value	7,671	(e) Value	9,714	(g) Value	32,648
(b) "	15,747	(d) "	4,179	(f) "	52,019	(h) "	1,67,193

Lessees extracted 199,343 tons of teak from the forests, of which 106,183 tons came from the Pyinmana forests; but although the total quantity extracted was 58,174 tons less than in the previous year, the revenue realised therefrom was considerably higher owing to the enhancement of the royalty rates under the new contract for the Pyinmana forests. The great decrease in the quantity of fuel extracted from the forests, as compared with the previous year, *viz.*, 7,810,258 cubic feet, was chiefly due to a reduction in the quantity roughly estimated to have been removed from unclassed forests of the Western Circle by free grantees without a license.

The extraction of 5,776 tons of cutch, valued at R57,021, from the forests of the Pegu Circle, as against 20 tons in 1897-98, appears to denote a revival of the cutch trade. Measures were taken to limit the issue of cutch licenses and prevent the extermination of the cutch in unclassed forests. In the Eastern Circle both the cutch and the rubber extracted were considerably in excess of the outturn of the previous year, and in the Western Circle the extraction of cutch increased by over 6,000 viss.

Central Provinces.—The following table compares the outturn of timber and fuel of the last two years :—

Northern Circle.

	1897-98.	1898-99.	+or—
	C. ft.	C. ft.	C. ft.
Departmentally	367,854	1,125,059	+757,205
By purchasers	4,327,518	4,305,857	—21,661
By free grants	1,136,263	196,642	—939,621
Total	5,831,635	5,627,558	—204,077

Southern Circle.

Departmentally	776,532	1,512,439	+735,907
By purchasers	7,141,742	7,344,857	+203,115
By free grants	465,467	323,107	—142,360
Total	8,383,741	9,180,403	+796,662

In his Resolution on the year's work the Chief Commissioner remarks—

"The general increase in departmental fellings in both Circles is due partly to the substitution of departmental for private fellings, and partly to the brisker demand following on the more prosperous condition of the country. Notwithstanding a very large reduction in the amount of free grants, the total output shows a considerable increase. There was a better sale for the large timber from Allapilli in Chanda, and the demand, for plague disinfection, for Katni lime greatly increased the sale of firewood in Jubbulpore. It is to be hoped that the measures for the 'rehabilitation of the iron-smelting industry on more or less modern lines' will have more success than the attempts which have hitherto been made to prop up this decaying industry; the large increase in the output of iron ore is encouraging."

Under minor produce there was a large increase in the Northern Circle in the number of bamboos removed by purchasers, also in the quantity of grass sold. The collection of *harra* was carried out in this Circle by departmental agency, and produced much better results than the old system of leasing the collection.

Assam.—The outturn of timber and fuel during the year under review is summarized and compared by the Conservator with that of the previous year in the following table, but the quantities of material removed by waste land lessees during the former are omitted under the orders of the Chief Commissioner :—

Class of forests, and agency of exploitation.	1897-98.									1898-99.								
	Logs.		Poles.	Sawn timber.	Miscellaneous.	Fuel.		Total.		Logs.		Poles.	Sawn timber.	Miscellaneous.	Fuel.		Total.	
	Traders.	Waste-land lessees.				Traders.	Waste-land lessees.	Traders.	Waste-land lessees.	Traders.	Waste-land lessees.				Traders.	Waste-land lessees.	Traders.	Waste-land lessees.
From reserved forests	669,106	...	412,637	23,526	1,536	248,891	...	1,355,450	...	923,126	...	263,822	45,337	571	263,718	...	1,201,577	...
From unclassed forests	1,158,208	2,197,683	3,852,247	263,375	72	10,087,990	1,132,573	15,361,892	3,330,257	1,611,706	415,736	5,621,332	224,633	...	10,910,499	325,131	18,131,170	740,870
Total outturn	1,827,614	2,197,683	4,264,284	286,903	1,657	10,336,881	1,132,573	16,717,342	3,330,257	2,237,832	415,736	5,890,154	269,970	571	11,174,217	325,131	19,632,747	740,870
By Government agency	65,751	...	4,355	6,712	237	19,335	...	90,390	...	82,823	...	1,800	23,611	2	21,410	...	152,651	...
„ purchasers	1,251,063	435,263	3,894,137	280,191	620	5,346,142	412,820	10,775,150	848,083	1,400,629	415,736	5,631,200	293,359	272	5,894,021	325,131	13,309,821	740,870
„ right-holders	200	...	...	...	...	...	...	200	...	450	...	1,600	...	...	...	...	2,050	...
„ free-grantees	507,603	1,762,415	365,792	...	800	4,971,407	719,753	5,815,602	2,482,169	753,925	...	255,554	...	300	5,158,786	...	6,178,565	...
Total outturn, cubic feet, sold	1,827,614	2,197,683	4,264,284	286,903	1,657	10,336,881	1,132,573	16,717,342	3,330,257	2,237,832	415,736	5,890,154	269,970	571	11,174,217	325,131	19,632,747	740,870
								20,047,599									20,373,617	

Omitting free grants to waste-land lessees there was the substantial increase of 2,808,187 cubic feet in the total outturn. The chief increase was one of 1,625,870 cubic feet in the out turn of poles, due to a greater demand for them by traders working under *gurkati* permits in the unclassed forests in the Garo hills, and there was a satisfactory decrease of 110,238 cubic feet of poles granted free. There was a large increase of 749,647 cubic feet under fuel.

The outturn of tea-boxes made from timber obtained from Government forests rose to 458,272 in number, showing an increase of 14,227 compared with the previous year.

Excluding 37 maunds of rubber obtained from the Charduar plantation, the outturn of home rubber increased from 761 maunds in 1897-98 to 821 maunds, while that of foreign rubber increased from 2,085 to 2,778 maunds.

Coorg.—The following statement summarizes the total outturn of major and minor produce and compares with that of the previous year:—

Agency.	Timber, in c. ft.		Sandalwood, in tons.		Fuel, in c. ft.		Bamboos, in number.		Grass and grazing, value.		Other forest produce including cardamoms.	
	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.
									R	R		
By Government	91,123	35,606	70	137	...	12,158	...	4,200	81	79	214	169
„ purchasers	156,019	362,120	...	...	112,995	89,370	199,031	203,610	2,119	*1,734	14,402	15,623
„ free grants	11,311	4,700	...	...	...	...	9,409	9,325	...	...	...	...
„ right-holders	...	...	...	...	...	...	...	...	1,573	1,675	...	...

*In the same statement of the last annual report the grazing revenue from Government agency and purchasers was totalled under a separate agency designated "By villagers and others." The grazing value of free grants and right-holders was also clubbed together, and the cardamom revenue was also shown separately under the agency "By villagers and others."

The Government of India remark:—

"There was a marked increase in the quantity of timber extracted from the forests, and this was chiefly due to the larger amount removed by purchasers. Departmental operations were somewhat restricted, and it is observed with satisfaction that a small beginning was made to reduce the accumulation of felled timber lying in the forests. Considerably more sandalwood was both collected and sold than in 1897-98, but the average price per ton was only R351, against an average of R374 for the last ten years."

Ajmer-Merwara.—In the following statement the outturn of the year from Reserved forests is compared with that of the previous year:—

Agency.	Timber and Fuel.		Other produce, value.		Difference.	
	1897-98.	1898-99.	1897-98.	1898-99.	Timber and Fuel.	Other produce.
	C. ft.	C. ft.	R	R	C. ft.	R
By Government	2,148	250	666	3,089	—1,898	+2,423
„ purchasers	433,438	274,184	4,125	8,696	+159,254	+3,512
„ right-holders	6,792	13,856	41,400	24,800	+7,064	—13,497
„ free grantees	500	3,050	2,813	1,467	+2,550	—1,356
Total	442,878	291,340	49,004	38,052	—151,538	—10,952

The falling off in the outturn of fuel was due to several coupes remaining unworked owing to their distance from the market, and to famine.

Of the stock of famine insurance grass (22,960 maunds), 16,250 were issued in the shape of *taccavi*, and most of the remainder was otherwise utilized; the balance at the close of the year was only 986 maunds.

Baluchistan.—The outturn of timber and fuel is shown in the following summary by the Agent to the Governor-General:—

Description of Forest.	Timber.		Firewood.	
	1897-98.	1898-99.	1897-98.	1898-99.
	C. ft.	C. ft.	C. ft.	C. ft.
Reserved	7,046	2,374	10,061	14,785
Unclassed	5,018	2,896	355,412	450,471
Total	12,064	5,270	365,473	465,256

'The decrease of nearly 7,000 cubic feet in the outturn of timber is reported to be due to a smaller local demand. The sale of firewood increased by a lakh of cubic feet. The drain on the Baluchistan forests for firewood is proceeding rapidly, whilst the Agent to the Governor-General fears that it cannot be said that the losses are being replaced to any appreciable extent either by natural or artificial reproduction."

The outturn of minor forest produce was valued at R11,115, of which R9,891 was on account of the estimated value of grazing exercised by right-holders.

Andamans.—The outturn, compared with that of the previous year, was as follows:—

Timber—

	1897-98. C. ft.	1898-99. C. ft.
Removed by the Forest Department	258,006	236,526
„ „ Purchasers	9,197	24,394
Total	267,203	260,920

Poles, Bullies, etc.—

Removed by District Officers	41,608	44,693
„ on free grants	37,500	37,500
Total	79,108	82,193

Fuel—

Removed by the Forest Department	939,662	1,167,030
„ „ Purchasers	6,430	2,534
„ „ District Officers	123,479	135,982
„ on free grants	330,000	330,000
Total	1,499,571	1,635,546

Twelve hundred and fifty-six padouk trees were felled, yielding 1,897 logs, as compared with 1,678 trees and 3,055 logs in the previous year; 451 tons of mill-sawn padouk were sent to London, where the sales of this timber during the year amounted to 513 tons. The price of selected mill-sawn padouk in London rose to 6*s.* 6*d.* per cubic foot, at which rate an offer for 1,600 tons was made and accepted. Local sales of padouk declined from 802 to 330 tons, owing to the change of policy under which as much choice padouk timber as possible is exported to London after satisfying the requirements of the settlement. The Forest Department supplied 21,780 tons of firewood and 1,789 pounds of gurjan oil to the Settlement.

Berar.—The sales outturn of the two years compare as follows:—

	1897-98 (forest year).	1898-99 (forest year).	1898-99. Increase.	1898-99. Decrease.
Timber . . . . Cubic feet	352,938	474,461	121,523	...
Fuel . . . . . „ „	1,144,160	1,442,364	298,204	...
Bamboos . . . . No. in hundreds.	19,317	27,177	7,860	...
Grass . . . . . Value R	42,703	36,726	...	5,977
Grazing . . . . . „ „	1,77,335	1,67,561	...	9,774
Miscellaneous . II.—Fruits, dye-stuff, lac	20,856	23,068	2,212	...
Miscellaneous . III.—Waif-wood	304	131	...	173
Miscellaneous . V.—Other sources	4,360	6,654	2,294	...
Gross revenue per square mile . . . R	98	104	6	...
Net revenue per square mile . . . „	41	47	6	...

The Conservator remarks—

"The year's outturn is satisfactory both as gauging the returning prosperity of the districts, and showing successful working. Timber sales have risen, and for the first time since regular fellings and working were introduced, the south Berar divisions of Akola, Buldana and Basim show exports that equal those of years when trees were selected by purchasers, and the check over the number removed and the style of cutting was nominal. Even the fall in grass and grazing sales is satisfactory, as it was due to the good crops of field-fodder."

Madras.—The total outturn of timber and other produce is compared with that of the previous year in the following statement—

Agency by which produce was removed.	Timber (including sandalwood).		Fuel.		Bamboos.		Minor produce, gross value.	
	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.	1897-98.	1898-99.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
By Government	412,399	662,916	2,036,473	2,839,534	258,738	397,177	59,921	41,649
By purchasers (including confiscations)	2,142,931	1,958,096	9,573,202	10,229,486	28,833,424	25,535,500	9,05,832*	9,02,537*
By free grants	62,652	54,053	5,168	3,183	203,573	126,970	1,829	2,334
By right-holders . . .	1,811	1,423	237,585	257,523	21,314	21,370	40,411	40,304
Total .	2,619,793	2,676,493	11,922,423	13,379,726	29,317,049	26,081,017	9,98,993	9,86,824
Increase or decrease in 1898-99, as compared with 1897-98 . .	...	+56,700	...	+1,457,293	...	−3,236,032	...	−12,169
Percentage of increase or decrease over the previous year's total .	...	+2·1	...	+12·2	...	−11·0	...	−1·2

* Includes grazing fees.

The Madras Government remark—

"There was an increase in the outturn of timber and fuel, but a fall in that of bamboos and minor produce. The increase was due chiefly to more extended departmental operations undertaken to accumulate stock for railway sleepers and to meet the demands of the Ordnance Department. The quantity of produce disposed of departmentally was somewhat greater than in the previous year, except as regards sandalwood and minor produce, but its value was less, being R4,49,647 as compared with R4,78,301. As regards produce removed directly by purchasers, there were marked decreases both in quantity and value under the heads of *Timber*, *Bamboos* and *Minor Produce*, which were only partly counterbalanced by an increase under *Grazing*. On the whole, the total value of removals by purchasers amounted to R15,18,314 as compared with R16,17,729 in the previous year. The principal causes of the fall appear to be restricted fellings in the interests of forest management and want of demand owing to depression of trade on account of plague."

Bombay.—The outturn of timber and other forest produce in the various Circles is shown by the Bombay Government in the following table:—

Circle.	Agency by which material was removed.	Material removed.					Average outturn per square mile of all Forests.		
		Timber.	Fuel.	Total Wood.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.
		C. ft.	C. ft.	C. ft.	No.	R	C. ft.	No.	R
Northern Circle	Government . .	147,861	193,110	340,971	1,053	...	...	...	...
	Purchasers . .	1,203,773	2,824,631	4,028,404	2,801,260	7,363	...	...	...
	Free grants . .	16,696	...	16,696	200	...	...	...	...
	Right-holders . .	...	1,609,036	1,609,036	224,320	11,176	...	...	...
	Total .	1,368,330	4,626,777	5,995,107	3,026,833	18,541	3,635*	1,835*	11*
Central Circle .	Government . .	447,813	2,165,693	2,613,536	...	22,857	...	...	...
	Purchasers . .	480,688	1,510,670	1,991,308	1,137,133	13,129	...	...	...
	Free grants . .	28,350	435	28,785	...	...	...	...	...
	Right-holders . .	...	4,126,605	4,126,605	1,600	20,355	...	...	...
	Total .	952,831	7,803,403	8,756,234	1,138,733	56,332	1,397	181	9
Southern Circle	Government . .	717,908	3,852,102	4,570,010	525,220	90,755	...	...	...
	Purchasers . .	512,318	2,368,094	2,880,412	2,553,221	92,740	..	...	...
	Free grants . .	51,733	3,210	54,943	26,545	1	...	...	...
	Right-holders . .	...	...	...	...	...	...	...	...
	Total .	†1,281,959	6,223,406	7,505,395	3,104 986	1,83,496	1,419	587	35

* These averages are per square mile of the total forest area of the Northern Circle excluding the leased forests of the Dángs.

† Besides 11,431,869 cubic feet of timber and fuel, 462,833 bamboos and minor produce of the value of R15,833 removed under privileges.

Circle.	Agency by which material was removed.	Material removed.					Average outturn per square mile of all Forests.		
		Timber.	Fuel.	Total Wood.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.
		C. ft.	C. ft.	C. ft.	No.	R	C. ft.	No.	R
Sind Circle	Government	1,041	138,425	139,436	...	729	...	...	...
	Purchasers	252,502	19,724,301	19,966,896	...	27,535	...	...	...
	Free grants	16,119	1,350	17,469	...	1,532	...	...	...
	Right-holders	...	96,417	96,417	...	...	...	...	...
	Total	259,722	19,960,496	20,220,218	...	29,336	19,063	...	27
All Circles combined.	Government	4,314,623	6,319,330	7,663,953	526,273	1,13,891	...	...	...
	Purchasers	2,439,354	26,427,699	28,867,050	6,494,614	1,40,353	...	...	...
	Free grants	108,893	4,993	113,893	26,745	1,533	...	...	...
	Right-holders	...	5,832,058	5,832,058	225,920	31,531	...	...	...
	Grand Total for 1898-99	3,862,872	38,614,082	42,476,954	7,220,552	2,87,709	*2,978	*500	*20
	Grand Total for 1897-98	4,290,544	30,155,336	34,445,880	7,829,291	1,68,135	2,420	550	11
	Difference in 1898-99	−427,672	+8,458,746	+8,031,074	−558,739	+1,19,573	+558	−41	+9

* These averages are per square mile of the total forest area of all Circles combined, excluding the leased forests of the Dangs.

The receipts from grazing fees and the sale of grass were—Northern Circle, R19,062; Central Circle, R2,46,398; Southern Circle, R72,573; Sind Circle, R60,351; total R3,98,384, as compared with R4,68,731 in 1897-98.

The large increase in the outturn of fuel took place almost entirely in Sind, where there was an unusual demand for railway consumption.

Plague and famine again impeded forest operations to a great extent.

CHAPTER IV.

Financial Results.

The gross revenue realized during the financial year amounted to R1,90,38,000, as against an average revenue for the last five years of R1,74,50,000, the net revenue was R90,04,000, as against a quinquennial average of R77,93,000. This is satisfactory and, but for the fact that owing chiefly to famine and plague the revenues of Bombay, the Central Provinces and Madras have seriously declined of late years, the gross and net revenue would have stood well above two and one crores of rupees respectively.

The revenue and expenditure for the year under review, and for the quinquennial periods since 1872-73, are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to Gross Revenue.
	R	R	Per cent.
1872-73 to 1876-77	65,38,373	44,09,179	67
1877-78 to 1881-82	73,80,431	49,42,512	67
1882-83 to 1886-87	1,06,78,807	68,31,284	64
1887-88 to 1891-92	1,32,46,891	80,69,590	56
1892-93 to 1896-97	1,71,60,426	93,99,796	55
1898-99	1,90,38,520	1,00,33,920	53

The forest resources of Upper Burma, which was added by conquest since the creation of the Indian Forest Department, is responsible for a gross revenue of R41,27,000 and yielded a net revenue of R32,31,000 or 75·4 per cent. This is quite exceptional and only possible when the material is almost entirely exploited at the cost of the purchaser. Apart from this the proportion of surplus to gross revenue amounted in the Bengal Presidency to 54·9 per cent.

The following table compares the revenue and surplus in each province with the average realized during the last five years :—

Province.	Revenue.		Surplus.		Deficit.		Proportion of surplus to gross Revenue.	Net Revenues per square mile of land under control of Forest Department.
	1898-99.	Average for preceding 5 years.	1898-99.	Average for preceding 5 years.	1898-99.	Average for preceding 5 years.		
	R	R	R	R	R	R	Per cent.	R
Imperial . . .	17,540	6,716	...	...	67,920	75,176	...	...
Bengal	9,72,310	10,15,224	4,85,990	4,93,025	...	...	49·9	35·4
North-Western Provinces and Oudh.	15,58,040	15,60,188	5,96,090	6,26,912	...	...	38·0	146·1
Punjab	14,74,430	10,27,284	6,19,090	3,20,842	...	...	41·9	32·7
Burma (Lower) . .	42,22,960	36,16,514	26,93,390	22,19,512	...	...	63·7	350·7
Burma (Upper) . .	41,27,930	24,85,870	32,31,310	18,74,968	...	...	75·4	404·5
Central Provinces . .	9,95,100	9,38,684	1,23,770	...	...	7,920	12·4	6·5
Assam	3,98,180	4,33,975	92,820	1,54,533	...	...	23·4	4·6
Coorg	1,55,070	1,37,200	74,970	53,696	...	...	48·3	83·7
Ajmer-Merwara . .	14,420	14,202	...	...	1,880	2,440	...	...
Baluchistan . . .	14,920	16,492	...	...	12,840	24,210	...	...
Andamans . . .	2,29,460	2,96,934	91,060	90,246	...	...	39·7	46·6
Forest School . . .	2,360	2,966	...	...	61,010	62,586	...	...
Forest Surveys (Imperial) .	290	290	...	...	33,680	30,432	...	...
TOTAL .	1,41,93,010	1,15,52,569	78,31,160	56,30,973	...	...	55·2	93·8
Berar	4,39,840	4,73,742	2,01,770	2,26,278	...	...	45·8	48·3
Total Bengal Presidency .	1,46,32,850	1,20,26,251	80,32,930	58,57,251	...	...	54·9	91·5
„ Madras „ .	21,10,520	20,78,320	5,15,850	6,17,944	...	...	24·4	26·3
„ Bombay „ .	22,95,150	33,46,084	4,55,900	13,17,964	...	...	19·8	30·5
GRAND TOTAL .	1,90,38,520	1,74,50,655	90,04,680	77,93,159	...	...	47·3	73·6

The following table presents an analysis of the receipts and expenditure of the year :—

					Amount. R	
Gross Receipts	(a) Wood				1,46,96,670	
	(b) Minor forest produce				12,10,860	
	(c) Forest stamps and commutation fees for forest produce				7,41,680	
	(d) Grazing				14,32,890	
	(e) Revenue from forests not managed by Government				3,72,340	
	(f) Miscellaneous				6,04,280	
	TOTAL REVENUE				1,90,38,520	
					Amount. R	Proportion of Expenditure to Gross Revenue. Per cent.
Expenditure	A Recurring	(a) Administration.	(i) Superior Staff		22,18,830	11·65
			(ii) Exchange compensation allowance.		91,750	0·48
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).		17,35,050	9·11
			(iv) Office Establishments (including Contingencies).		8,30,520	4·36
		(b) Working	(1) Extraction		28,34,810	14·89
			(2) Roads and Buildings		4,56,430	2·40
			(3) Fire-protection		3,23,570	1·70
			(4) Cultural operations		3,35,890	1·76
			(5) Live-stock, stores and plant.		2,43,820	1·28
			(6) Working-plans*		74,390	0·39
			(7) Rent for leased forests		1,25,620	0·66
			(8) Miscellaneous		99,910	0·53
		(c) Expenditure on realisation of revenue from forests not managed by Government.			11,540	0·06
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School).			75,110	0·40
		TOTAL			94,57,240	49·67
	B. Extraordinary	(e) Forest Settlement			58,330	0·31
		(f) Forest Surveys			4,01,580	2·11
		(g) Forest Demarcation			1,16,270	0·61
		TOTAL			5,76,680	3·03
	GRAND TOTAL EXPENDITURE				1,00,33,920	52·70
	Net Revenue				90,04,600	47·30

* Exclusive of "B" charges.

The table below shows the estimated value of forest produce for which no credit has been taken, and which was given away free or at reduced rates to right-holders and under free grants :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	₹	₹	₹	₹	₹	₹
Bengal	15,985	1,11,803	7,171	28,914	94,550	2,58,423
North-Western Provinces and Oudh.	67,879	60,813	1,162	11,006	60,981	2,01,841
Punjab	60,004	3,29,359	...	50,821	2,92,780	7,82,964
Burma (Lower) . . .	8,702	15	2,318	2,188	7,539	20,762
Burma (Upper) . . .	1,13,857	27,388	1,41,360	25,502	1,23,867	4,31,974
Central Provinces . . .	4,700	2,000	6,500	10,800	3,700	27,700
Assam	66,088	80,763	9,698	2,30,627	63,606	4,50,782
Coorg	587	...	46	...	1,675	2,308
Ajmer-Merwara . . .	352	48	...	3	26,264	26,667
Baluchistan	12	4	...	19	9,891	9,926
Andamans	5,682	4,748	61	151	...	10,642
Berar	62,274	49,493	20,124	15,144	1,05,174	2,52,209
Total Bengal Presidency . .	4,06,122	6,66,434	1,88,440	3,75,175	7,90,027	24,26,198
„ Madras „ . .	8,720	4,900	1,020	39,895	2,745	57,280
„ Bombay „ . .	22,469	2,04,786	3,800	48,897	3,99,614	6,79,566
Grand Total .	4,37,311	8,76,120	1,93,260	4,63,967	11,92,386	31,63,044

CHAPTER V.

I.—Establishment.

During the year under review, six officers of the Imperial Service retired, four died and one resigned. Of the 19 permanent Conservators, only 7 remained on duty throughout the year. There was no alteration in the sanctioned strength of Deputy and Assistant Conservators, which stood at 186 officers, and out of these 157 remained on duty throughout the year. The number of Imperial Service Officers on foreign service increased from three to four, owing to Mr. Pigot's deputation to Mysore, whilst seven officers of the Provincial Service were similarly employed. Mr. McDonell remained in charge of the Kashmir forests, and Messrs. Slade and Tottenham, as well as three officers of the Provincial Service, continued on deputation in Siam.

Three appointments were transferred from the Imperial to the Provincial Service, making a total number of 15 thus transferred under the reorganization scheme at the close of the year. Since then, however, progress in this direction has been more rapid, as at the present moment (September 1900) out of the 43 appointments that are to be transferred from the Imperial to the Provincial Service, 26 have actually been transferred.

A scheme for the reorganization of the clerical establishments of the Department has been recently drawn up and submitted for the sanction of the Secretary of State.

The members of the Provincial Service are generally reported to have done good work. The conduct of the Subordinate Forest Establishment was satisfactory on the whole, but a difficulty occurs in some provinces in recruiting a good stamp of Forest Guard, and dismissals amongst this class are frequent. A serious case of embezzlement of large sums of money by the Head Clerk was discovered in the Pegu division; the clerk was prosecuted and sentenced to a heavy term of imprisonment.

II.—Experiments.

Seeds of the following species were sent to the hills divisions of the Punjab, to the Jaunsár and Naini Tal divisions in the North-Western Provinces, and to Baluchistan for experimental sowing: *Pinus Pinaster*, *Pinus Laricio*, varieties *austriaca*, *corsica*, *poiretiana*, *monspelliensis* and *pallasiana*, all from Germany, and cluster pine from Cape Colony.

The sowings were not carried out in all cases with as much care as is desirable when dealing with the introduction of exotics, but at the close of the year under review it was too early to express a definite opinion on the results. *Pinus Pinaster*, the cluster pine from Cape Colony, and *Pinus Laricio*, varieties *poiretiana* and *monspelliensis* germinated the best.

Robinia pseudo-acacia.—There is little that is new to record regarding the introduction of this species. The seedlings put out in the Lansdowne range of the Central Circle, North-Western Provinces, were not successful, and very few plants survived of fresh sowings made in the Saharanpur division. Sowings at 2,000 feet in Kangra were fairly successful, and the trees planted at Sukesar in the Shahpur division, as well as the seedlings of 1897 in Changa Manga, continued to thrive. In Baluchistan some of the sowings were made at too great an altitude, but the results at lower altitudes

tend to show that owing to the scanty rainfall of the country the cultivation of the *Robinia* will only prove successful where irrigation is possible, so that the usefulness of the species must be greatly restricted.

Spanish chestnut.—A number of grafted chestnut plants were imported from France in Wardian cases, and sent to the School Circle, North-Western Provinces, and to Kulu in the Punjab, but the plants were despatched too late in the year from Europe, and they were probably all dead before they reached their destination well on in the hot weather. In Bashahr the old chestnut trees produced an average crop of fruit. No success attended the sowing of seed, obtained from Kulu, in the Rawalpindi division. Some chestnut seedlings were imported from Naini Tal for experiment at Chaman and Mach in Baluchistan, but a very hot season was against success, and only 26 out of 102 plants were alive at the close of the year.

India-rubber.—With a view to the importance of increasing the rubber resources of the country it is satisfactory to note that in Assam the Charduar rubber plantation of *Ficus elastica* was extended by 40 acres, and that preparations were made to carry on operations in future on a more extensive scale. Experimental tappings were made in compartments Nos. 1 to 4, area 314 acres, of this plantation, but owing to the wasteful method of tapping and to the work being carried out during an unfavourable season, the results were not quite satisfactory. The yield of 3,065 trees previously untapped and of 1,984 previously tapped or badly grown trees was 3, 365 lbs. of rubber, which sold in London at 3s. 4½*d.* per pound. In Madras the Ceara rubber tree (*Manihot Glaziovii*) is doing well in Ganjam, South Arcot and South Malabar, and seeds of this species, obtained from Ceylon, were sown during the year in South Coimbatore, though only 474 out of 5,000 germinated. In North Malabar the cuttings of *Ficus elastica* put out in 1897 are growing vigorously, and 7,000 seeds of *Hevea braziliensis*, "Para" rubber, were put out in baskets. In Burma the blanks in the experimental garden of 52 acres at Mergui were sown with *Hevea*, which germinated well. White ants caused many casualties among the older *Ceara* rubber trees in the plantations of the Rangoon division, where *Urceola esculenta*, a rubber-yielding climber, has been successfully introduced and is spreading naturally.

The Government of India has lately agreed to the establishment of a plantation of 10,000 acres in the Tenasserim Circle for the cultivation of the *Hevea* or Para rubber tree, at an estimated cost of R2,10,000 during the next 12 years, at the end of which period it is expected that the plantation will yield a net revenue of a lakh of rupees per annum.

Chinese silkworm.—With reference to the experiment mentioned in the review for 1897-98, the Divisional Officer of Jaunsár reports as follows on the introduction of the *Antheræa Perruzi* silkworm :—

"The number of cocoons at the end of the previous season's culture was 179. These were kept throughout the autumn and winter months at Deoban, and were brought down to Chakrata in the middle of March 1899. One hundred moths hatched out between the 6th and 17th April, and eggs were laid shortly afterwards. These eggs were kept at Chakrata to hasten the process of hatching, and as the larvæ hatched out they were put upon leaves of kharshu oak (brought down daily from Deoban) and were then transferred to Deoban themselves. Six hundred and forty-five larvæ hatched, out of which 390 were still alive and healthy at Deoban on the 1st July, the rest having either died in transit between Chakrata and Deoban or after arrival at the latter place. The experiments carried out during the past two years clearly show that the insect cannot be successfully cultivated in Jaunsár, except at considerable trouble. They do not thrive on either *moru* or *ban* oak, and rearing

them in the *kharshú* forests is never likely to be taken up to any great extent by the Jaunsáris on account of the distance from their villages of such forests."

Seedlings of the Chinese oak, on which the above silkworm thrives in China, are reported to be doing well at Darjeeling, and some were transplanted into the Simla Municipal forests, of which 236 were alive at the close of the year, but a defoliator had attacked them.

Lac.—Owing to an unfavourable season, no attempt was made to cultivate lac in the Central Provinces, and for the same reason the cultivation was continued only on a small scale in Berar. In the Saharanpur Division of the School Circle, North-Western Provinces, lac was cultivated with success on 525 dhák (*Butea frondosa*) trees.

Resin.—The tapping of *Pinus longifolia* trees was continued with improved results in the Jaunsár division. One thousand and forty-three maunds of crude resin were distilled at Dehra Dun, the yield being 799 maunds of colophony and 1,742 gallons of turpentine. The net profit was about R1-13 per maund on the 1,043 maunds of resin. The experiment made to ascertain the yield per tree was continued, and the results for three seasons tapping gave an average outturn of 12·23 lbs. per tree per season. In the Naini Tal division the net profit on similar operations was R1-9-9 per maund of resin worked up, and the yield per tree was much smaller than in Jaunsár owing to a great number of trees tapped being of small dimensions. Resin operations were also started in the Kangra division of the Punjab, and sanction has since been given to the establishment of a factory for the distillation of crude resin.

III.—Exports of Forest-produce.

The following table gives the amounts and value of various articles exported from India during the year :—

Articles of Forest-produce.	Quantity, in tons, of 20 cwt.; in case of Teak cubic tons.		Valuation at Port of shipment in 1898-99.	
	Average of five years 1893-94 to 1897-98.	In 1898-99.	Total.	Per ton.
			R	R
Caoutchouc	378	312	12,33,623	2,954
Lac—				
Button	1,492	1,580	15,52,740	983
Shell	7,532	7,320	70,07,781	957
Stick and other kinds	94	206	1,53,423	744
Lac-dye	5	6 cwt.	200	33 per cwt.
Sandal, ebony and other ornamental woods	Information	not available.	6,19,691	...
Catch and gambier	7,451	3,084	12,82,710	416
Myrabolams	45,791	45,296	32,04,717	71
Teak	62,412	77,376	95,48,025	123
Cardamoms	84	78	3,36,315	4,311
Total in 1898-99	...	...	2,49,39,225	...
„ 1897-98	...	...	2,63,95,440	...
Decrease in 1898-99	...	...	14,56,215	...

There was again a considerable falling off in the total value of exports from the country. Compared with the previous year there was an increase in the quantity of caoutchouc, myrabolams and cardamoms exported, and a considerable advance in the value of caoutchouc. On the other hand the amount of lac exported decreased by 1,835 tons, and there was a falling off in value under this head of nearly 20 lakhs of rupees; the decrease in cutch and gambier was also considerable. There was a decrease of 4,490 tons in the amount of teak exported, but the value advanced from R116 to R123 per ton. The following information regarding the teak trade in the home and Indian markets was kindly supplied by Messrs. the Bombay-Burma Trading Corporation, Limited:—

"The activity of the teak timber market, both at home and in the East, has been well maintained in spite of various drawbacks.

"At home the effects of the Engineers' strike are no longer so apparent, and from private firms there has been a good demand. On the other hand, experience of the Spanish-American War seems to have been against the use of wood in war vessels whenever a non-inflammable substance could be utilized, and that the Admiralty have adopted this view is evident by the fact that they called for tenders for 2,078 tons of teak this year as against 7,300 tons in 1898. This largely-decreased demand on the part of Government, if unaccompanied by increased consumption on the part of private firms, must eventually have a weakening effect on the home market.

"The total exports to Europe during the year amount to rather over 60,000 tons, towards which Siam contributed about 10,000 tons, and prices remained at much the same level as last year—£12 to £13 for Burma cargoes and £13 to £14 for planks according to specification.

"In the Indian markets also there has been a good demand, shipments to Bombay especially having shown a considerable increase. Prices have been well maintained, but there are not wanting signs that they have reached their high-water mark, and that any attempt to force prices higher would inevitably result in a largely decreased consumption. Enquiries are already so general and widespread for something that will take the place of teak owing to its great expense, that it would be over-sanguine to anticipate any further increase in prices or even the permanence of those that at present prevail.

"In the local markets both at Rangoon and Moulmein higher prices have as usual been realized than the returns from foreign markets would seem to justify. This is due partly to the very keen competition there is for all free supplies that come into the local market, and partly also to the demand for local requirements and special orders from which small shippers can obtain relatively a far higher price than is paid for the bulk of market shipments."

IV.—Technical Education and Recruitment.

Six young Forest officers, having completed their course of training at Cooper's Hill College, came out to India towards the end of 1898 and were posted, 2 to Bombay, 2 to Burma, 1 to the North-Western Provinces and Oudh, and 1 to the Central Provinces.

The course of training at Cooper's Hill College for the Imperial Service remained under the guidance of Dr. Schlich, assisted by Mr. W. R. Fisher, and during the year seven young men were selected by competition to undergo the course.

The Directorship of the School at Dehra Dun was held by Mr. J. S. Gamble until the 10th January 1899, when he retired from the service and was succeeded by Mr. H. C. Hill, who remained in charge until the close of the year. Mr. F. Gleadow continued to hold the post of Deputy Director, and Mr. A. F. Gradon that of Senior Instructor, save during a period of 3 months when he was absent on privilege leave, and Mr. S. Carr, *F.C.H.*, Deputy Conservator of Forests from Burma, officiated for him. The post of junior Instructor was

held throughout the year by Mr. A. M. F. Caccia. Babu Upendro Nath Kanjilal continued to hold the appointment of Vernacular Instructor and was assisted by Babu Birbal. The School staff was assisted by Mr. J. F. Duthie, Director of the Botanical Department, Northern India, and by some of the officers of the School Circle. Forty-six candidates were admitted to the School during the year, at the close of which the number of students attending the School was 95, as compared with 75 on the 1st July 1898. A satisfactory feature of the year was that 64 per cent. of new admissions to the School consisted of private students, which may be reasonably be attributed to the improved prospects of the Provincial Forest Service. At the usual final examination, out of the 22 students of the upper class 21 obtained the higher standard certificate, one of them with honours, and the one who failed was allowed to stay on at the School for another year. All the six students who had completed their term of instruction in the lower class obtained their certificates, and one of them with honours. In his annual report for the year the Director remarks:—

"Since 1851 Higher Standard Certificates have been granted to 367 students and Lower Standard Certificates to 111 students. The following table embodies the available information in regard to their subsequent careers:—

Forest Department, India and Madras.		Higher standard certificate.	Lower standard certificate.
Deputy Conservators	2	2	...
Extra-Deputy Conservators	3	3	...
Extra-Assistant Conservators	72	71	1
Rangers	194	171	23
Deputy Rangers	41	4	37
Foresters	1	...	1
	313		
Commission	5	5	...
Police	2	2	...
Ceylon Forest Department	3	3	...
Forest Department of Native States	69	47	22
Left the service	18	14	4
Deceased	35	19	16
No information is available in regard to	33	26	7
TOTAL	478	367	111"

At the Poona School of Science the forest students appeared to be rather below the average as regards their intellectual abilities, as only 10 out of 17 students who presented themselves for the final examination of the Senior Ranger Class passed the examination.

V.—Forest Administration In Native States.

Copies of their Annual Administration Reports have been received from Mysore, His Highness the Nizam's Dominions, and Jodhpur.*

The report for Mysore was submitted by Mr. J. L. Pigot, who succeeded Colonel Campbell Walker, on the retirement of the latter officer from the 3rd January 1899. There was a net addition of 202 square miles to the area of State forests, which stood at 1,747 square miles at the close of the year. The area of reserved lands was 266 square miles, of which 35 square miles were nearly ready for constitution as State forests. Progress in forest settlement work is said to be hampered by the want of a law under which the State may secure legal right to Reserved forests, and in virtue of which adverse rights or privileges of user may be properly provided for and recorded, and also by the want of special Settlement Officers. Demarcation in Mysore appears to have

* The Annual Report of progress in Kashmir was received too late for notice in this Review.

been hitherto carried out by antiquated methods, and to have been saddled with the cost of establishment which should be charged to other heads; it is therefore satisfactory to learn that steps to remedy these defects are contemplated. Rupees 3,447 were spent on surveys; but it is not clear what area was surveyed. The drawing up of several working-plans was in progress, but there is urgent need in most districts for short, simple plans of work. The percentage of convictions obtained in prosecutions for breaches of the forest rules rose from 73 in the previous year to 81 per cent., but the punishments awarded were in some instances of so light a nature that they could not have had any materially deterrent effect, and the Government has since insisted upon the necessity of awarding adequate punishment in cases involving damage to sandalwood. According to the figures given in the report, 1,368 square miles were protected from fire out of 1,435 square miles attempted, or 95 per cent., but the returns do not appear to have been reliable. The Conservator advocates concentration of fire-protection in smaller areas, and it is evident from his remarks that much has to be done to render fire conservancy in Mysore real and effective. Although plague interfered with some branches of forest operations, it did not affect the sales of sandalwood, and the financial results were rather better than those of the previous year. The revenue was R11,82,146, the expenditure R4,81,588 and the surplus R7,00,558, as compared with R6,66,348 in 1897-98. The total quantity of sandalwood sold was 2,074 tons, which fetched an average rate of R381 per ton, as against 1,572 tons and R386 in the previous year.

The Report of Forest Administration in the dominions of His Highness the Nizam of Hyderabad is for the year ending 6th October 1898. At the close of the year the area of reserved forests was 4,035 square miles, of which 160 square miles were added during the year. Many of the most valuable forests are still in the open tracts, in which only certain species of the more valuable trees are under the control of the Forest Department; but the protection afforded to these open forests is said to be quite inadequate, and it is therefore satisfactory to learn that proposals to reserve an additional area of some 5,000 square miles are under consideration. Seventy-nine miles of boundaries were demarcated during the year, but much remains to be done in this direction, and the work is hindered by many boundary disputes. Owing to the Reserved forests being surrounded by private estates, from which timber is often sold at nominal rates, the difficulty of working the Government forests is very great, and this difficulty is still further aggravated by the want of export roads. A liberal policy in providing funds for the construction of roads, without which it is impossible to properly work the forests, and also for providing suitable quarters for the Forest establishment, is highly desirable, and such outlay would undoubtedly prove as remunerative in Hyderabad as it has elsewhere in India. The Conservator, Mr. Biscoe, in his report brings prominently to notice the manner in which the forests are deteriorating, owing to illicit felling, and the impossibility of proper supervision owing to the utterly inadequate strength of the protective establishment. Certain powers to fine for offences committed in Reserved forests have been granted to Forest officials, and the results are said to be satisfactory. There was a large increase in the number of cases shown as compounded, which rose to 4,340, but it would appear that the cases in which fines were inflicted are included in this number. The Conservator's contention that it is of little use sending cases to the Courts

seems to be borne out by the fact that convictions were obtained in only 7 out of 23 cases disposed of by the Courts. In the absence of any law or rules on the subject, the difficulty of protecting the forests from fire is very great and cannot be attempted on a large scale; but it is satisfactory to note that there is some improvement in preventing or extinguishing fires before they have done much harm. One hundred and fifty-one square miles were successfully protected from fire against 16 square miles in the previous year. There was a great improvement in the financial results compared with previous years; the revenue realized was R2,96,551, the highest on record, and the expenditure R1,26,817, thus leaving a surplus of R1,69,734.

In Jodhpur the total area under the management of the Forest Department was 343 square miles, of which 8 square miles were fuel and fodder reserves. The famine caused a great increase in the number of cases of breaches of the forest rules; 538 cases were compounded, as compared with 263 in the previous year, but the average amount realized per person fell from R1-4-3 to R0-14-9. The results of cases prosecuted in the Courts were unsatisfactory, convictions being obtained in only 4 out of 27 cases decided. Fire-protection was rendered comparatively easy, as owing to the scarcity of fodder the forests were swept clean of grass and fallen leaves before the fire-season began. Only 4 acres of forest were burnt out of 215,000 acres placed under protection. The financial results showed some improvement over those of the two previous years, but were still adversely affected by the continued drought. The revenue realized was R28,643, and the expenditure R20,925, leaving a surplus of R7,718.

APPENDIX I.

Summary of the Revenue and Expenditure of the Forest Department in India for the year 1898-99.

Summary of the Revenue and Expenditure

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	13,830	22,110	4,66,770	11,03,860	25,30,360	4,52,360	1,09,470	29,830	1,01,910	990	2,450
II.—Timber and other produce removed from the forests by consumers or purchasers.	3,710	3,95,930	10,20,510	2,96,550	10,43,840	34,88,930	3,37,440	2,83,230	51,310	12,200	1,210
III.—Drift and waif wood and confiscated forest produce.	...	11,110	20,750	27,960	2,37,410	31,700	2,010	9,010	...	50	...
IV.—Revenue from forests not managed by Government.	...	...	12,690	3,720	2,97,240	...	...	32,290	...	...	10,820
V.—Miscellaneous	...	36,160	47,320	42,270	64,110	1,54,890	36,150	38,820	1,820	1,180	410
Total Revenue . .	17,540	9,72,310	15,68,040	14,74,430	42,22,960	41,27,930	9,95,100	3,96,180	1,55,070	14,420	14,920
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	500	15,270	2,77,490	3,81,260	5,86,480	226,990	56,310	18,460	19,100	1,360	3,670
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	56,100	17,970	500	37,510	5,270	76,630	2,900	...	80	...
III.—Drift and waif wood and confiscated forest produce.	...	1,910	8,690	6,070	1,05,220	26,530	30	300	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	4,170	...	4,260	...	...	2,010	...	...	330
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	22,160	35,090	...	...	...	5,200	...	...	...
VI.—Live-stock, stores, tools and plant	...	14,370	15,120	4,470	44,360	35,250	14,770	19,090	2,760	220	60
VII.—Communications and buildings .	...	60,180	94,130	47,650	25,480	20,910	18,500	33,110	5,950	960	70
VIII.—Demarcation, improvement, and extension of forests.	420	33,820	1,02,000	33,960	2,44,770	1,01,050	1,49,130	27,310	10,80	2,210	80
IX.—Miscellaneous	...	5,680	8,710	1,920	9,190	4,050	6,790	2,610	2,690	50	70
Total A.—Conservancy and Works .	920	1,87,330	5,50,730	5,11,520	10,38,610	4,20,050	3,21,560	1,11,010	40,100	3,910	2,330
B.—Establishments.											
I.—Salaries	78,940	2,42,980	3,51,240	2,79,860	4,07,890	3,97,090	4,65,970	1,58,370	32,920	9,480	22,130
II.—Travelling allowances . . .	5,310	42,070	31,440	42,170	57,170	65,820	42,580	24,940	5,610	1,050	2,590
III.—Contingencies	290	14,840	28,620	22,290	25,900	13,660	41,220	11,040	1,410	830	720
Total B.—Establishments .	84,540	2,93,990	4,21,300	3,48,320	4,90,960	4,76,570	5,49,770	1,94,350	39,940	13,390	25,430
Grand Total of Expenditure .	85,460	4,86,320	9,72,030	8,55,840	15,29,570	8,96,620	8,71,330	3,05,360	80,100	16,300	27,760
Surplus .	...	4,85,990	5,95,990	6,19,090	26,93,390	32,31,310	1,23,770	92,820	74,970	...	...
Deficit .	67,920	...	...	...	...	...	...	...	...	1,880	12,840

IX I.

f the Forest Department in India for the year 1898-99.

Andamans.	Forest School.	Forest Surveys (Imperial).	Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand total.	Budget Heads.
									TERRITORIES).
R	R	R	R	R	R	R	R	R	REVENUE.
2,26,450	...	...	51,17,400	4,25,000	8,46,360	63,88,760	...	63,88,760	I.—Timber and other produce removed from the forests by Government agency.
2,010	...	...	79,51,980	15,88,010	13,54,430	1,08,94,420	4,34,690	1,13,29,110	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	3,30,030	11,940	7,490	3,39,460	150	3,39,610	III.—Drift and wait wood and confiscated forest produce.
...	...	...	3,56,830	...	15,510	3,72,340	...	3,72,340	IV.—Revenue from forests not managed by Government.
290	2,360	290	4,26,770	35,570	71,360	5,33,700	5,000	5,38,700	V.—Miscellaneous.
2,29,460	2,360	290	1,41,93,010	21,10,520	22,95,150	1,85,98,680	4,39,840	1,90,38,520	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
91,320	...	...	16,76,710	2,13,290	4,59,640	23,36,640	...	23,48,640	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	1,76,360	92,380	39,600	3,08,340	27,450	3,35,790	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,48,740	1,450	190	1,50,380	...	1,50,380	III.—Drift and wait wood and confiscated forest produce.
...	...	...	11,540	...	...	11,540	...	11,540	IV.—Revenue from forests not managed by Government.
...	...	...	63,350	17,500	29,210	1,10,060	15,360	1,25,620	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
22,300	490	...	1,72,890	47,200	20,990	2,41,180	3,130	2,44,311	VI.—Live-stock, stores, tools and plant.
4,390	120	...	3,11,330	90,410	33,330	4,35,120	21,460	4,56,580	VII.—Communications and buildings.
600	...	33,970	7,40,180	2,99,570	2,57,170	12,86,920	23,610	13,10,530	VIII.—Demarcation, improvement, and extension of forests.
100	3,110	...	44,910	13,350	42,530	1,01,790	1,230	1,03,020	IX.—Miscellaneous.
1,19,210	3,750	33,970	33,46,060	7,66,250	8,81,660	49,93,970	92,440	50,86,410	Total A.—Conservancy and Works.
									B.—Establishments.
16,540	51,360	...	25,18,370	6,40,000	8,05,830	39,58,700	1,17,560	40,76,260	I.—Salaries.
2,030	4,420	...	3,37,230	1,35,630	1,09,920	5,81,780	16,660	5,98,440	II.—Travelling allowances.
620	3,840	...	1,65,270	52,790	43,310	2,61,400	11,410	2,72,810	III.—Contingencies.
19,190	59,620	...	30,15,870	8,28,420	9,57,990	48,01,880	1,45,630	49,47,510	Total B.—Establishments.
1,38,400	63,370	33,970	63,61,930	15,94,670	18,39,650	97,95,850	2,38,070	1,00,33,920	Grand total of Expenditure.
91,060	...	...	78,31,080	5,15,850	4,55,500	88,02,430	2,01,770	90,04,200	Surplus.
...	61,010	33,650	...	...	...	...	...	...	Deficit.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1874-75 to 1898-99.

REVENUE.

1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
1,141	1,465	2,490	1,36,772	16,716	17,215	18,837	27,407	30,732	32,907	28,571	15,708	1,195	4,817	4,017	1,759	6,578	6,623	5,210	2,680	2,980	2,690	2,100	19,130	17,510
1,85,932	1,98,571	2,22,401	1,25,228	4,16,027	4,19,524	5,61,310	6,33,731	6,93,959	6,91,331	5,71,152	5,97,132	6,63,631	6,57,791	6,76,907	7,63,718	7,27,392	7,59,563	7,14,820	8,01,610	7,56,670	9,18,770	13,70,850	11,80,280	9,72,310
13,63,353	12,61,256	11,59,671	12,63,108	11,25,755	10,39,906	9,12,128	10,06,091	10,13,403	10,11,383	15,72,319	14,61,493	15,73,556	12,17,151	11,62,802	17,11,151	16,37,879	17,31,514	16,62,540	17,09,660	16,58,250	16,91,240	14,11,820	13,86,670	15,03,010
8,31,874	9,62,831	5,96,751	6,83,711	5,00,619	6,13,819	6,71,678	6,58,333	7,96,709	9,10,177	7,19,352	8,50,419	11,27,277	7,86,996	10,15,703	9,21,713	8,34,370	10,20,074	8,12,630	9,13,300	10,32,130	10,14,500	11,07,720	10,68,170	14,74,430
19,74,302	17,79,020	15,31,166	16,03,682	11,37,562	11,20,190	15,16,613	22,31,201	25,69,896	25,09,275	16,70,982	20,23,859	19,96,567	22,88,877	26,09,905	31,31,716	26,77,671	28,58,114	35,23,370	31,59,350	32,71,200	34,14,550	33,18,270	40,86,200	12,22,909
...	...	...	...	...	...	...	...	...	...	...	...	1,03,071	2,96,570	15,79,925	18,06,972	16,14,247	13,27,210	29,76,530	22,95,750	21,62,580	22,31,220	25,60,630	31,20,000	41,27,950
6,90,508	7,26,175	6,61,325	6,53,910	8,52,892	10,96,723	8,50,133	11,72,831	9,77,647	9,94,769	10,27,202	10,26,894	9,57,410	10,93,369	11,80,405	11,56,181	12,13,161	13,59,909	12,30,858	11,31,185	10,08,630	9,96,940	7,73,320	7,80,050	9,95,100
65,919	61,870	31,553	1,31,226	1,61,779	1,61,335	1,58,997	1,66,051	2,18,505	2,11,115	1,80,111	1,95,656	2,12,011	2,67,312	3,03,892	2,79,496	3,05,793	3,36,120	3,82,330	3,88,500	3,35,990	4,25,690	4,36,110	3,81,820	3,91,180
58,015	1,07,160	75,927	1,01,915	52,020	1,01,786	87,857	1,09,561	1,39,022	87,822	1,13,233	89,336	99,291	1,27,023	1,35,153	92,753	1,35,561	1,82,897	1,80,680	1,73,790	1,53,060	1,35,250	92,000	1,20,040	1,55,070
202	110	905	3,002	1,251	1,851	1,121	1,465	7,126	8,192	10,456	9,097	11,274	14,258	13,571	11,592	15,266	19,799	14,860	14,020	12,810	15,610	12,370	15,510	14,420
...	21	...	...	63	38	222	...	348	36	231	202	211	40	315	220	2,101	257	520	240	80	510	400	220	290
...	...	...	...	...	...	...	...	...	...	93	273	415	777	419	1,257	1,181	1,788	1,590	1,990	2,700	4,310	2,850	2,800	2,360
4,536	5,200	4,672	1,396	5,561	2,127	27,731	48,407	30,858	21,762	12,213	23,911	31,870	1,01,022	1,06,075	1,02,186	4,58,326	2,72,538	2,00,160	4,31,790	1,15,530	1,32,120	3,62,370	4,33,710	2,29,100
42,50,720	50,51,216	43,50,129	49,76,155	42,71,208	46,13,691	48,46,899	61,39,121	64,51,305	70,25,105	59,44,204	63,04,935	67,77,906	68,19,035	91,19,616	1,01,58,811	93,80,671	99,05,351	1,16,17,530	1,13,67,960	1,06,55,120	1,06,42,870	1,19,87,190	1,26,26,960	1,11,73,600
5,14,101	6,77,873	5,92,573	5,50,310	6,05,788	6,22,163	7,36,820	8,06,903	9,06,442	9,53,704	11,05,916	11,93,650	12,16,911	13,71,720	15,15,005	15,57,627	17,93,103	16,96,216	15,77,210	19,47,180	18,91,030	21,10,570	22,03,330	21,36,190	21,16,520
12,24,651	12,48,572	12,26,658	12,61,521	11,31,691	15,24,712	15,22,897	18,28,117	20,90,453	25,69,100	27,71,812	33,05,788	30,32,676	30,32,577	28,58,190	34,27,696	32,82,220	32,81,619	32,69,550	37,91,250	37,50,930	35,36,670	30,32,710	25,16,660	22,95,150
59,52,182	62,80,791	61,69,360	67,33,236	60,50,830	67,61,774	71,06,556	87,73,145	94,48,160	1,05,41,912	98,85,962	1,08,09,908	1,10,57,493	1,12,27,182	1,31,81,802	1,48,43,134	1,44,61,202	1,55,85,216	1,58,94,290	1,72,06,490	1,62,99,180	1,65,90,110	1,73,23,230	1,73,30,100	1,55,83,700
2,00,673	2,32,782	2,53,072	2,79,226	2,88,201	3,47,500	2,06,566	2,33,511	2,92,014	3,03,218	2,07,183	3,10,851	3,26,241	4,06,117	4,07,977	4,10,511	4,27,109	5,11,181	4,31,020	4,82,800	4,73,100	4,94,340	5,17,820	4,00,350	4,39,810
...	...	...	...	...	...	...	...	...	...	931	631	654	596	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	14,376	18,016	5,039	4,752	6,099	14,932	14,031	14,963	5,063	13,899	15,721	20,909	19,030	20,730	16,200	14,930	15,100	15,040	14,920
92,19,856	72,13,573	61,22,432	70,07,523	63,46,590	70,72,271	73,87,188	90,26,273	97,15,153	1,08,54,882	1,01,50,170	1,12,05,315	1,13,98,186	1,16,48,233	1,36,98,451	1,53,03,572	1,49,67,125	1,51,17,940	1,63,14,310	1,77,13,020	1,67,83,880	1,70,90,380	1,78,56,510	1,77,95,190	1,60,38,520

* The figures in this statement have been revised by the Comptroller and Auditor-General.
† Incl...

APPENDIX II—*continued.*

EXPENDITURE.

Province.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	31,210	18,229	44,094	98,099	63,956	73,816	65,291	77,635	97,263	98,206	96,309	93,215	85,239	78,625	95,190	81,311	85,113	65,783	1,67,270	89,810	82,950	80,810	78,960	84,309	85,160
Bengal	1,01,361	1,12,676	2,15,197	2,62,913	2,28,675	2,75,718	3,35,331	3,91,612	3,82,183	3,87,813	4,11,915	3,70,239	4,22,761	3,99,958	3,76,270	3,93,150	4,14,004	4,22,930	3,81,610	4,04,040	3,97,290	4,66,070	6,90,340	6,53,140	5,86,320
North-Western Provinces and Oudh	10,61,302	7,36,998	8,61,362	7,28,326	6,03,977	7,16,591	6,79,574	9,16,212	8,20,025	10,11,455	10,20,101	9,71,519	9,19,530	8,39,718	8,44,541	9,63,151	9,19,196	9,58,211	9,28,540	9,63,620	9,36,810	9,42,860	9,05,340	9,17,850	9,72,630
Punjab	6,53,983	5,56,911	5,25,659	5,20,631	5,23,554	4,80,676	4,95,958	5,16,269	5,60,750	6,53,116	5,58,070	6,75,183	7,16,510	6,77,912	5,93,885	6,15,855	6,53,011	6,40,275	6,56,270	6,26,130	7,22,120	6,78,420	7,23,300	7,71,910	8,55,340
Burma (Lower)	6,63,547	8,15,659	10,05,551	8,58,231	7,18,402	7,53,190	7,12,568	11,50,224	12,28,955	12,17,221	12,12,233	11,50,912	10,75,830	10,32,694	12,31,944	13,32,811	10,86,175	13,25,121	13,63,250	13,11,640	13,78,230	13,57,710	15,03,290	14,04,110	15,29,570
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,85,129	2,72,800	3,02,315	3,73,659	4,41,750	5,20,850	5,39,760	5,75,860	6,25,530	7,92,500	8,96,620
Central Provinces	2,96,149	3,73,227	2,80,295	3,22,931	3,03,758	5,22,571	4,96,512	4,97,082	4,19,247	4,36,058	4,96,821	5,45,132	4,90,293	5,52,939	6,68,691	6,06,445	7,35,564	8,03,915	8,51,460	9,32,199	9,56,669	9,92,360	9,50,930	9,21,440	8,71,330
Assam	60,367	63,397	60,520	1,01,153	1,26,022	1,32,859	1,42,725	1,65,361	1,71,823	1,93,562	1,97,699	2,11,491	2,12,287	2,26,892	2,09,905	2,57,129	2,83,852	2,67,525	2,61,070	2,63,220	2,72,010	2,86,140	2,82,090	2,83,330	3,05,360
Coorg	37,999	40,168	33,692	36,269	31,829	55,165	56,187	59,796	64,770	78,023	76,951	65,690	71,088	72,629	20,175	72,420	65,818	86,850	73,090	86,830	86,140	85,810	71,630	87,020	80,100
Ajmer	15,281	27,316	22,160	14,926	13,445	13,750	12,422	13,954	11,283	14,579	16,316	16,469	20,744	18,897	15,676	12,701	12,720	13,986	15,000	15,900	15,900	15,730	22,010	15,670	16,300
Forest Surveys (Imperial)	78,050	58,930	58,929	60,165	60,325	46,878	48,233	42,169	41,595	30,940	19,823	19,180	28,318	22,868	22,164	21,188	25,323	28,832	22,160	27,900	23,810	29,950	31,970	33,950	33,970
Forest School	...	...	...	...	...	...	...	...	...	...	22,563	21,239	30,831	33,129	32,951	9,616	35,191	44,317	50,100	65,530	65,980	67,950	67,350	60,920	61,370
Andamans	...	...	1,367	1,095	...	7,177	2,160	2,306	1,810	12,161	22,760	27,685	25,769	62,579	57,256	94,973	1,30,052	1,79,909	2,31,210	2,14,550	1,22,780	1,02,020	3,16,600	2,17,340	1,38,100
Total	29,52,589	28,63,632	31,18,279	30,04,512	30,82,919	36,78,691	36,37,221	38,35,871	38,01,710	41,67,252	41,50,561	40,72,131	41,14,596	41,31,532	50,01,844	48,72,615	47,47,954	52,03,608	53,86,029	55,33,010	56,26,170	56,41,330	62,76,650	62,78,310	63,31,170
Madras	5,95,911	5,92,039	6,25,560	5,65,021	5,95,915	5,18,927	5,19,270	6,03,119	6,45,252	7,06,733	8,96,505	9,37,972	11,53,122	11,29,212	12,20,791	11,61,237	12,16,913	12,24,254	13,20,230	12,62,770	13,86,250	11,45,610	15,31,300	15,72,850	15,91,670
Bombay	8,36,675	7,91,161	8,23,979	8,77,716	10,01,923	10,76,989	11,67,367	11,69,181	12,73,776	15,61,172	17,78,723	18,39,161	19,52,910	19,44,605	16,93,982	17,70,691	18,69,827	19,31,157	19,01,970	20,71,910	20,67,920	19,58,230	19,69,160	20,73,190	18,39,250
Total (British India)	44,85,205	42,19,812	46,22,818	44,47,782	45,83,785	57,01,207	57,24,151	56,08,171	57,25,982	65,18,157	68,25,791	68,55,570	72,20,561	72,01,750	79,19,600	78,11,543	78,64,751	86,55,319	86,21,330	90,22,720	90,20,710	90,45,330	97,73,510	99,24,350	97,62,090
Berar	91,239	91,419	94,652	1,09,963	1,07,356	1,10,505	1,23,962	1,52,985	1,55,654	1,56,780	1,52,649	1,59,212	1,71,701	1,83,765	1,70,212	1,76,549	1,68,921	1,98,395	2,29,230	2,54,250	2,53,640	2,45,510	2,41,870	2,34,050	2,33,070
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	15,043	31,201	42,910	45,472	42,090	23,955	8,461	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	16,616	17,682	11,982	10,911	13,206	15,799	17,836	17,753	15,991	17,962	29,450	30,597	55,620	63,720	40,910	41,770	29,770	27,330	27,760
Grand Total	45,76,444	43,11,231	47,17,470	45,57,750	46,91,126	58,11,712	58,64,729	57,78,838	58,92,618	67,00,890	70,26,846	70,71,551	74,55,592	74,13,268	81,29,758	80,12,518	80,63,125	88,84,182	89,05,230	93,40,700	93,73,290	93,32,486	1,00,15,150	1,01,95,730	1,00,33,920

* Includes pay of Inspector-General of Forests, certain home charges and undistributable and petty local items.

STATEMENT II—*concluded.*

SURPLUS.

Provinces.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	—39,695	—46,771	—41,514	38,573	—37,210	—56,596	—46,401	—50,228	—56,533	—65,359	—69,732	—73,537	—82,113	—73,779	—82,182	—76,552	—79,044	—59,160	—1,62,030	—78,160	—79,970	—77,720	—71,960	—65,170	—67,920
Bengal	86,571	55,598	7,901	1,63,315	77,352	1,73,776	2,25,959	2,39,122	3,11,776	3,05,521	1,59,237	2,27,033	2,30,853	2,67,426	3,00,637	3,70,563	3,13,388	3,66,623	3,63,270	3,97,570	3,98,220	4,52,610	5,30,810	5,35,840	4,85,990
North-Western Provinces and Oudh.	3,02,656	5,27,377	2,89,309	4,74,182	3,16,776	3,23,372	2,62,651	1,19,882	1,71,378	5,69,498	5,52,218	4,86,976	6,53,976	4,16,705	6,18,258	7,51,008	7,18,694	7,72,303	7,24,000	7,16,840	7,21,940	6,53,160	5,28,480	4,63,820	5,96,080
Punjab	1,75,891	3,52,929	73,695	1,63,063	—22,925	1,69,113	1,76,310	1,72,039	2,65,959	2,57,031	1,91,222	1,78,936	4,10,767	1,09,023	4,54,533	2,75,858	1,81,329	3,19,799	1,56,369	2,76,870	3,10,310	3,36,660	3,81,420	2,96,530	6,18,010
Burma (Lower)	4,31,255	9,63,361	5,15,851	7,15,851	4,19,180	4,26,708	8,01,015	10,81,580	12,74,941	12,94,451	4,59,719	8,72,907	9,22,837	11,26,263	13,77,351	18,01,522	15,91,701	15,32,966	22,28,128	21,57,710	18,95,970	20,56,810	23,14,960	26,82,090	26,93,390
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	...	1,65,886	4,75,721	7,91,739	15,32,278	13,41,982	9,53,441	16,34,280	17,73,890	16,22,820	17,05,420	19,35,150	23,36,560	32,31,310
Central Provinces.	3,66,459	3,52,819	3,71,631	3,61,976	4,59,101	4,81,150	3,54,627	6,75,871	5,65,400	5,58,711	5,31,281	5,91,462	4,58,117	5,40,430	5,11,708	4,59,736	4,77,907	5,55,993	3,79,450	2,02,250	32,770	14,600	—1,77,670	—1,41,390	1,23,770
Assam	5,582	—1,527	—8,952	33,173	35,751	31,506	26,272	693	67,782	11,883	—17,285	—14,838	—276	40,420	93,977	1,22,269	42,911	63,601	1,18,760	2,20,280	1,63,080	1,38,890	1,54,430	95,990	92,820
Coorg	29,016	67,292	42,285	61,747	17,191	46,621	31,370	40,568	73,252	12,799	26,282	23,695	25,203	54,395	56,068	29,333	69,713	96,037	1,07,560	86,900	68,910	49,410	21,370	43,890	74,970
Ajmer	—15,079	—25,936	—21,555	—11,921	—12,201	—11,889	—11,299	—9,869	—4,158	—6,376	—5,850	—6,772	—8,476	—4,601	—2,102	—1,109	2,546	5,813	—110	—1,280	—2,060	—90	—9,010	870	—1,890
Forest Surveys (Imperial)*	—72,059	—58,909	—58,929	—60,165	—69,282	—46,840	—40,663	—42,189	—41,247	—30,801	—19,593	—18,978	—23,197	—32,822	—21,819	—20,963	—22,220	—26,625	—21,610	—27,609	—29,765	—29,110	—31,570	—33,720	—33,630
Forest School	...	...	...	...	...	...	...	...	...	...	—22,195	—23,965	—30,416	—32,352	—32,512	—23,109	—34,007	—12,559	—18,420	—63,540	—63,190	—63,640	—64,530	—58,630	—61,010
Andamans	5,516	5,363	3,372	205	5,561	—5,719	25,573	16,101	69,012	12,601	—547	—13,091	6,101	41,283	48,780	67,220	28,274	92,129	1,29,220	1,97,210	—8,250	30,100	45,770	1,86,370	91,060
Total	11,98,141	21,90,614	12,01,850	19,72,013	11,88,259	15,25,203	18,09,015	23,03,250	26,49,565	29,17,856	17,93,611	22,25,828	26,63,358	26,83,152	41,14,765	52,73,196	46,32,720	46,96,753	56,61,510	58,79,950	50,28,650	53,01,510	57,17,140	63,48,640	78,43,220
Madras	—81,540	85,834	—42,987	—15,314	1,10,874	77,611	2,17,610	2,03,189	2,61,690	1,66,971	2,70,411	2,69,078	93,789	2,45,708	2,91,212	3,95,890	5,18,195	3,69,962	2,46,820	5,81,110	5,07,680	6,61,960	7,69,030	5,63,610	5,15,850
Bombay	3,87,320	4,51,531	3,87,679	3,83,812	4,76,971	4,47,723	3,55,493	6,53,306	8,11,583	9,36,928	9,96,119	15,26,825	16,79,706	16,83,572	11,56,228	13,67,905	14,18,333	13,53,192	13,61,580	17,22,410	16,32,110	15,78,280	16,63,550	15,13,470	4,55,900
Total (British India)	15,03,977	27,30,979	15,46,542	23,10,511	18,76,104	20,50,537	23,82,115	31,65,673	37,22,238	40,23,755	30,60,171	40,13,331	43,36,913	46,22,432	55,65,205	70,37,591	65,99,548	64,19,907	72,72,910	81,83,770	72,18,440	75,41,750	75,49,720	74,55,750	88,15,670
Berar	1,89,225	1,41,282	1,58,120	1,69,263	1,81,254	1,96,991	1,37,583	80,526	1,36,969	1,51,139	1,41,596	1,26,609	1,51,552	2,22,682	2,37,765	2,63,992	2,18,188	3,12,818	2,01,780	2,28,550	2,21,760	2,48,830	2,75,950	1,56,300	2,01,770
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	—15,013	—33,870	—42,309	—41,821	—41,502	—23,955	—6,161	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	—2,040	934	—6,923	—12,159	—7,177	—837	—3,755	—3,690	—10,326	—4,965	—12,726	—9,883	—36,599	—13,000	—24,610	—26,940	—14,310	—12,290	—12,940
Grand Total	16,73,202	28,72,262	17,04,662	25,09,779	16,57,358	22,57,561	25,17,658	32,47,133	38,52,275	41,47,992	31,63,698	41,39,794	29,32,694	46,99,922	57,68,689	72,91,651	68,01,010	67,22,828	74,38,110	83,72,320	74,15,590	77,05,770	78,11,260	75,99,760	90,01,600

*Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

G. I. C. P. O.—No. 370 R & A.—4-2-1901.—250.—J. W. G.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1899-1900.

BY

H. C. HILL,
INSPECTOR-GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREAS.

I.—Alteration in Area.

The alterations which took place during the year in the area of *Reserved forests* are shown in the following table :—

Province.	Area, in Square Miles.				Remarks.
	In 1898-99.	Added in 1899-1900.	Excluded in 1899-1900.	At close of 1899-1900.	
Bengal	5,881	...	...	5,881	
North-Western Provinces and Oudh	4,005	44	...	*4,049	*Includes 152 square miles of *leased* forests.
Punjab	2,892	...	1	†2,891	†Includes 343 square miles of *leased* forests.
Burma	15,669	1,492	7	‡17,154	‡Includes 865 square miles of *taungya* areas.
Central Provinces	18,930	709	724	18,915	
Assam	3,537	101	29	3,609	
Coorg	238	...	...	238	
Ajmer	139	...	...	139	
Baluchistan	205	...	...	205	
Andamans	156	...	...	156	
Total	51,652	2,346	761	53,237	
Berar	4,175	12	11	4,176	
Total Bengal Presidency	55,827	2,358	772	57,413	
Madras	14,888	983	9	15,862	
Bombay	13,435	277	17	§13,695	§Includes 679 square miles of *leased* forests in the Dangs, Surat District.
GRAND TOTAL	84,150	3,618	798	86,970	

The net increase in the total area of Reserved forests was 2,820 square miles, as compared with 2,734 square miles in the preceding year. The most noteworthy additions took place in Burma, Madras and Bombay. The reclassification of forest lands in the Central Provinces was continued, and resulted in a net decrease of 15 square miles in the area of Reserved forests, the greater part of the areas shown above as added and excluded being merely transfers from class to class.

2. The areas of all forest lands under the management of the Forest Department at the close of the year are given in the following statement :—

Provinces.		Forest area, in square miles.				Proportion of forests to whole area of Province.	Remarks.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed State.	Total.		
						Per cent.	
Bengal	153,148	5,831	2,475	4,033	13,589	8·87	
North-Western Provinces and Oudh	106,149	*4,049	30	43	4,122	3·88	*Includes 152 square miles of *leased* forests.
Punjab	110,786	†2,891	2,473	3,837	9,201	8·30	†Includes 343 square miles of *leased* forests.
Burma	160,767	‡17,154	...	(a)72,263	89,417	55·28	‡Includes 865 square miles of *taungya* areas.
Central Provinces	86,451	18,915	...	181	19,096	22·09	
Assam	45,978	3,609	...	16,452	20,061	44·20	
Coorg	1,582	238	661	...	899	56·82	
Ajmer	2,646	139	...	10	149	5·62	
Baluchistan	...	205	...	...	205	...	
Andamans	2,000	156	...	1,795	1,951	97·55	
Total	668,907	53,237	6,839	98,614	158,690	§23·62	§Baluchistan left out of account.
Berar	17,707	4,176	...	...	4,176	23·58	
Total Bengal Presidency	686,614	57,413	6,839	98,614	162,866	§23·73	
Madras	141,259	15,862	...	§3,787	19,649	13·9	§"Reserved Lands."
Bombay	123,048	¶13,695	1,250	...	14,945	12·15	¶Includes 679 square miles of *leased* forests in the Dangs, Surat District.
GRAND TOTAL	950,921	86,970	8,089	102,401	197,460	§20·71	

(a) The area of Unclassed State forests in Burma was not given in the Review for 1898-99, though stated in the Provincial Report to have been 68,751 square miles.

The total area under the control of the Forest Department shows the very large increase of 75,264 square miles when compared with the area given in the Review for 1898-99. This increase is chiefly due to the inclusion for the first time in the above table of the estimated area of Unclassed forests (72,263 square miles) to which the provisions of Chapter IV of the Burma Forest Act and of the Upper Burma Forest Regulation apply, as these areas and their outturn now find their place regularly in the returns of the Department. The balance of the increase, or 3,001 square miles, was caused principally by the reservation of an area of 1,485 square miles in Burma, 974 square miles in Madras, and 260 square miles in Bombay, and by an addition of 1,718 square miles to the Unclassed forests in the Punjab, counterbalanced in part by a reduction of 919 square miles in the area of 'reserved lands' in Madras.

The details of the principal changes which occurred in the several provinces are given below :—

Bengal.—One hundred and forty-one square miles of protected forests in the Sundarbans were given up for purposes of cultivation.

North-Western Provinces and Oudh.—In the Central Circle eight square miles of District protected forest, in the Naini Tal division, were transferred to Reserved forests, which were also

augmented by the reservation of 22 square miles of *Khair* and other forests in the Kumaon division, and the re-reservation in the Ganges division of two square miles which were disforested in 1891, but the cultivation of which had proved impracticable. An increase of 12 square miles in the area of reserves in the Oudh Circle was caused by a rectification of areas in Gonda, and to the reservation of a portion of the area received in 1893 from the Khairigarh estate in exchange for forest reserve lands, with the view to simplifying boundaries. The areas in the School Circle remained unchanged.

Punjab.—In the Chenab division 13 square miles of *rakhs* were transferred to the Colonization Department. In the Multan district 1,727 square miles of Unclassed forests were transferred to the management of the Forest Department, and four square miles were gained by alluvion in the Muzaffargarh district. Small decreases of 397 and 70 acres in the areas of Reserved and Protected forests, respectively, were caused chiefly by river action and transfers to other departments.

Burma.—Good progress was made in the reservation of forest areas, the net addition to the Reserved forests being 1,485 square miles. In Lower Burma 892 square miles were reserved, mostly for fuel, and 64 square miles were gained by correction of areas in the Pegu Circle: and a net addition of 79 square miles was made in the Tenasserim Circle. In Upper Burma the area of new reserves amounted to 428 square miles, or considerably less than in the previous year, of which 232 square miles were in the Northern Circle and 196 square miles in the Southern Circle. At the close of the year the total area of Reserved forests in Burma was 17,154 square miles, of which 865 square miles are burdened with *taungya* privileges. As explained above the large increase in the total forest area is chiefly due to the inclusion for the first time of 72,263 square miles of Unclassed forests.

Central Provinces.—Progress in the re-classification of areas was interfered with in many districts, owing to the Forest establishment being largely employed on famine works. In the Southern Circle the total area under departmental control decreased by 27 square miles, of which 85 square miles were made available for cultivation, and 12 square miles were excluded from A. Class forests by the rectification of areas. In the Northern Circle large additions and reductions were made in the areas of the various classes of forest lands, but they were almost entirely due to corrections, and the result was a net increase of eight square miles in this Circle.

Assam.—The area of the Reserved forests was increased by 72 square miles; 80 square miles in the North Cachar hills were reserved, and about 21 square miles were added to the Charduar reserve, while on the other hand 29 square miles in Cachar and Sylhet were disforested. The area of the Unclassed State forests at the end of the year is shown as 16,452 square miles, but this figure is unreliable and does not correctly indicate the area of timber-bearing lands outside the Reserved forests.

Coorg.—No change took place in the area of Reserved forests. Four square miles were relinquished by planters and ryots and were consequently added to the area of '*paisaries*.'

Ajmer.—No change took place in the area of forest lands.

Baluchistan.—The area of Reserved State forests underwent no change.

Andamans.—No change took place in the area of Reserved forests. The area of Unclassed forests was reduced by 315 acres, owing to clearances for cultivation, etc., by the Settlement authorities.

Berar.—The area of timber and fuel reserves was reduced by two square miles, and that of pasture reserves increased by three square miles, thus causing a net increase of one square mile in the total area of State forests. Except in the Basim district, considerable progress was made in the re-classification of the free-grazing areas.

Madras.—The area of Reserved forests was 15,862 square miles at the close of the year, the net addition during the year being 974 square miles, of which 970 square miles were transferred from the area of Reserved lands. One hundred and seventy-five square miles were added to the area of Reserved lands, and 124 square miles in addition to the area transferred to Reserved forests were excluded, the net reduction being 949 square miles. The percentage on the 30th June 1900 of the reserved area to the total unoccupied area, excluding zamindari and inam villages, varied from 75·23 per cent. in the Nilgiris to 2·55 per cent. in Tanjore, and averaged 38·13 per cent. for the whole Presidency, as compared with 37·87 per cent. on the 30th June 1899.

Bombay.—In South Kanara in the Southern Circle 256 square miles were transferred from Protected to Reserved forests, and in West Kanara eight square miles were settled as Reserved forests. The changes in the other Circles were very small, and the net increase in the total area under the control of the Department, as compared with the previous year, was only three square miles.

II.—Forest Settlements.

As apart from the final act of settlement by notification of lands as Reserved forests under the various Acts and Regulations, considerable progress was made in forest settlement work in Madras and Burma. In Bombay the work was hindered by the famine, but, with the exception of that in the Kanara District, all the most important settlement work has been completed, and little remains to be done but to acquire by exchange or compensation private lands enclosed within the forest boundaries, and in Sind to notify areas under the Forest Act.

The following table shows the progress made in forest settlement work in the various provinces up to the end of the year under review :—

Province.	Areas already settled at the commencement of the year.			Areas finally settled during the year.					
				Area in square miles.			Expenditure incurred during the year.		
	Reserved forests.	Protected forests.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
Bengal	5,881	...	5,881	...	...	...	...	...	...
North-Western Provinces and Oudh	3,857	30	3,887	40	...	40	...	...	...
Punjab	2,677*	2,605	5,282	...	...	...	...	...	...
Burma	15,732	...	15,732	1,420	...	1,420	1,574	...	1,574
Central Provinces	18,929	...	18,929	1	...	1	...	...	...
Assam	3,508	...	3,508	101	...	101	...	...	...
Coorg	...	...	...	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...	...	...	...
Andamans	156	...	156	...	...	...	...	...	...
Baluchistan	205	...	205	...	...	...	...	...	...
Berar	...	...	...	...	...	...	...	...	...
Total Bengal Presidency	50,945	2,635	53,580	1,562	...	1,562	1,574	...	1,574
Madras	15,006	...	15,006	970	...	970	11,942	...	11,942
Bombay	11,808	506	12,314	272	...	272	57	...	57
Grand Total	77,759	3,141	80,900	2,804	...	2,804	13,573	...	13,573

Province.	Areas undergoing settlement.								
	At commencement of the year.			Taken in hand during the year.			Expenditure incurred during the year.		
	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
Bengal	842	...	842	...	...	...	...	...	...
North-Western Provinces and Oudh	28	...	28	6	...	6	27	...	27
Punjab	21	...	21	2	...	2	...	...	...
Burma	1,048	...	1,048	1,642	...	1,642	9,965	...	9,965
Central Provinces	2	...	2	51	...	51	...	...	...
Assam	105	...	105	...	...	...	...	...	...
Coorg	...	...	...	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...
Berar	...	...	...	...	...	...	...	...	...
Total Bengal Presidency	2,046	...	2,046	1,701	...	1,701	9,992	...	9,992
Madras	2,020	...	2,020	226	...	226	30,343	...	30,343
Bombay	33	...	33	9	204	213	16,817	...	16,817
Grand Total	4,099	...	4,099	1,936	204	2,140	57,152	...	57,152

* Exclusive of 348 square miles of leased forests in Chamba and Bashahr.

The details of work done in the various provinces are as follow :—

Bengal.—Settlement work commenced in the Chittagong Division in 1897-98 remained uncompleted. Proposals to set aside certain blocks as fuel and fodder reserves in the Jalpaiguri District, and to constitute them Protected forests under the control of the Civil authorities, were under the consideration of the Local Government at the close of the year.

North-Western Provinces and Oudh.—The progress made is thus described by the Local Government—

"In the Central Circle, in addition to 28 square miles of forests, which were under settlement last year, and which have been finally constituted reserves, the settlement of the Sarda islands in the Almora District and the Papidanda tract in Garhwál was undertaken and completed during the year. Both these tracts were gazetted free of rights. In the Oudh Circle the villages received from the Khairigarh estate other than those made over for management to the Revenue Department have also, since the close of the year, been gazetted as Reserved forests free of rights."

"The investigation referred to in last year's review of the Forest Reports, to ascertain whether the administration was in accordance with the policy laid down by the Government of India in 1884, has now been practically brought to a conclusion, except in Jaunsár, where various causes have delayed it. It still remains to issue final orders regarding some of the Bundelkhand, Garhwál, and Pilibhit forests; but all fundamental points have now been settled, and only questions of detail remain. The investigation has shown that the reasonable and unobjectionable requirements of the agricultural population in the neighbourhood of the forests were not in all cases fully provided for; and it has been necessary in some cases to grant additional concessions, and in others to alter the rules so as to place less difficulty in the way of the enjoyment of existing rights and concessions. The powers of Conservators have also been enlarged, to enable them to act more speedily and effectively by giving free grants to right-holders whose villages have been devastated by fire or other calamity."

Punjab.—No settlement work of importance was in progress during the year, and it was not found possible to deal with that of the Shahpur-Kandi forests.

Burma.—In Lower Burma 991 square miles, including 524 square miles of fuel reserves in the Henzada Division of the Pegu Circle; and in Upper Burma 429 square miles were notified as Reserved forests. At the close of the year 1,918 square miles of proposed reserves had been enquired into and awaited final notification, and 995 square miles awaited settlement. The work of proposing areas for outch reserves was completed in the Northern Circle, and it is expected that about 210 square miles will be available for reservation. In the Southern and Northern Circles the examination of fresh tracts of forests with a view to further reservation was continued.

Central Provinces.—The settlement of three small areas, aggregating one square mile, was completed, and 51 square miles were undergoing settlement.

Assam.—The Langting-Mupa reserve in Cachar of 80 square miles was settled, and also the addition of 20 square miles to the Chardwar reserve in Darrang. The Barail reserve in Cachar, comprising 104 square miles, was under settlement. Proposals were submitted affecting 44 square miles in the Garo Hills, and 15 square miles in Darrang, of which the former have since been gazetted as proposed reserves.

Coorg.—An examination of the Ghat forests was made with a view to excluding from the approaching settlement areas unsuitable for reservation. Some of the *paisaries* were inspected with a view to selecting the more valuable areas for reservation, and the areas thus selected form proposed additions to the present reserves.

Ajmer.—The Chief Commissioner remarks :—

"The revised records-of-rights sanctioned by Government could not be brought into operation, as the season of acute famine and scant yield of grass rendered necessary the adoption of special grazing rules with a view to mitigate the distress among the villages."

Baluchistan.—Several projects for the reservation of fresh areas still remained under consideration, but owing to scarcity and famine it was considerable undesirable to carry any of them into effect.

Andamans.—No areas were under settlement during the year.

Berar.—No settlement work was carried out, but considerable progress was made in the re-classification of the free-grazing areas.

Madras.—Steady progress was made in the constitution of forest reserves, 970 square miles of which were finally notified during the year. The Madras Government makes the following remarks on the progress of forest settlement operations :—

"On the 30th June 1900 a total area of 15,862 square miles had been finally constituted Reserved forests under the Act : 114 square miles had been notified as becoming Reserved forest on some later date : 2,246 square miles were in various stages of settlement : and 1,427 square miles had been selected for reservation, but not yet brought under settlement. It is satisfactory that the work done by the five special Settlement-officers was on the whole equal to that accomplished during the previous years. On the other hand, the progress made in bringing under settlement lands reserved for the purpose and in completing selections for further reservation, left much to be desired."

"In reviewing the report for the previous year the Government of India asked for an assurance that the areas not yet constituted reserves were of sufficient present or prospective value to warrant the capital outlay of transforming them into reserves. This assurance may confidently be given as regards the area (2,360 square miles) actually under settlement. As regards the area reserved for settlement and the estimate of further selections, the remarks in the foregoing paragraphs show that in several districts the examination of the proposed blocks has not been completed nor the question of their value for reservation definitely decided. This should be done wherever practicable without further delay, as the termination of Forest Settlement operations generally seems now within view."

Bombay.—Settlement work in the Northern Circle was delayed owing to the famine, which threw extra work on all offices, and in Thana was more or less at a standstill. In the Central Circle the acquisition of lands within the sanctioned forest boundaries is all that remains to be done. Forest Settlement work in the Southern Circle is practically complete, except in Kanara where no progress is expected until the cessation of the famine permits of a special officer being appointed for the work. All land acquisition work has been completed in Sind, but large areas remain to be notified under the Forest Act, and no progress was made during the year for the same reason as in the Northern Circle.

III.—Demarcation.

New demarcation work was carried out on the largest scale in Madras, but considerable progress was also made in Bombay, where the famine, however, interfered with the work, and in the Central Provinces and Burma. The improvement of existing boundaries received a good deal of attention in the North-Western Provinces and Oudh and the Punjab. In the Bombay Presidency the length of boundaries which remains to be demarcated is still very great, especially in the Southern Circle.

There was an increase of 3,052 miles in the total length of boundaries, which stood at 150,156 miles at the close of the year. The total expenditure on demarcation work during the year was R1,20,172.

The following table shows the detail of the boundaries in the various provinces at the close of the year:—

Provinces.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries still to be demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	42	2,985	317	3,344	71	1,771	5,186	31	9,677
North-Western Provinces and Oudh.	Central Circle	61	89	2,360	2,510	66	696	3,272	2,624	1,952
	Oudh "	34	306	941	1,281	13	311	1,605	1,963	2,730
	School "	22	264	501	787	...	352	1,139	662	1,222
	Total	117	659	3,802	4,578	79	1,359	6,016	5,249	5,904
Punjab	.....	226	1,280	9,744	11,250	4,289	1,196	16,735	1,373	5,106
Burma	Pegu Circle	160	1,019	819	2,028	470	1,121	3,619	3,230	2,575
	Tenasserim "	116	1,000	1,366	2,482	5	556	3,043	539	6,466
	Northern "	87	443	1,751	2,281	145	875	3,301	2,430	1,412
	Southern "	309	1,268	578	2,155	459	772	3,386	2,992	1,364
	Total	672	3,760	4,514	8,946	1,079	3,324	13,349	9,191	11,817
Central Provinces	Northern Circle	218	8,140	2,601	10,959	422	1,353	12,734	148	2,044
	Southern "	669	10,444	1,118	12,231	136	1,079	13,446	687	4,703
	Total	887	18,584	3,719	23,190	558	2,432	26,180	835	6,747
Assam	.....	15	1,130	3	1,148	4	1,460	2,612	213	2,580
Coorg	.....	...	22	260	282	...	15	297	89	509
Ajmer	.....	...	18	236	254	...	158	412	...	13
Andamans	.....	...	...	42	42	16	91	149	...	...
Baluchistan	.....	...	77	226	303	...	77	380	...	...
Berar	.....	1	845	518	1,364	...	145	1,509	102	584
Total Bengal Presidency	.....	1,960	20,360	23,381	54,701	6,096	12,028	72,825	17,083	42,937
Madras Presidency	Northern Circle	731	931	4,836	6,498	1,326	729	8,553	10,580	12,894
	Central "	691	3,327	8,463	12,481	991	198	13,670	6,095	1,365
	Southern "	437	876	5,488	6,801	764	1,011	8,576	5,496	4,257
	Total	1,859	5,134	18,787	25,780	3,081	1,938	30,799	22,171	18,516
Bombay Presidency	Northern Circle	380	486	2,280	3,146	1,192	329	4,667	7,576	573
	Central "	582	1,412	14,589	16,583	6,006	861	23,450	5,413	3,750
	Southern "	164	...	877	1,041	14,195	636	15,872	2,153	...
	Sind "	17	1,526	435	1,978	1	564	2,543	...	...
	Total	1,143	3,424	18,181	22,748	21,394	2,390	46,532	15,142	4,323
Grand Total	.....	4,962	37,918	60,349	103,229	30,571	16,356	150,156	54,396	65,776

N.B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions, such as blocks, compartments and coupes.

The details of the chief work in the different provinces were as follow :—

Bengal.—Forty-two miles of boundaries were demarcated during the year, of which 41 miles were in the Singhbhum Division. The total length of artificially-marked boundaries at the close of the year was 3,344 miles, of which 2,935 miles were repaired.

North-Western Provinces and Oudh.—In the Central Circle the demarcation of new reserves was in progress. In all 61 miles were demarcated, of which 50 miles were in Kumaon. Good progress was made, especially in the Naini Tal Division, in revising and improving defective boundaries.

The re-demarcation of reserves with numbered monoliths progressed satisfactorily in the Oudh Circle, and at the close of the year only 43 miles remained to be done. In the Sehool Circle new work was confined to the Jaunsár Division and consisted of the demarcation of areas excluded from reserves, and the digging of 18 miles of ditches between pillars.

Punjab.—In the Shahpur Division 105 miles of boundaries were demarcated, and in Kangra nine Protected forests were re-demarcated. Boundaries in Chamba and Kulu were improved by the reconstruction of pillars, and in Montgomery by digging 19 miles of trenches. In the Rawalpindi Division 6,078 pillars were repaired and 145 miles of boundary lines were cleared, and in the Lahore Division 33 miles were demarcated by trenches and 73 miles of boundary lines cleared.

Burma.—Of the 672 miles of new demarcation carried out, 160 miles were done in the Pegu Circle at a cost of about R20 per mile, and 309 miles in the Southern Circle at less than R7 per mile.

In the Tenasserim Circle 116 miles of boundaries were apparently demarcated at the low cost of less than R5 per mile, but it is not clear whether the work was completed. Altogether 3,760 miles of boundaries were repaired at a cost of R11,817 or about R3 per mile. Excluding the Tenasserim Circle, for which complete figures are not available, 1,074 miles remained to be demarcated at the close of the year, and the Local Government remarks that this work does not keep pace with the settlement of new reserves.

Central Provinces.—The Local Government remarks :—

"Good progress has been made in the demarcation of the forests in the Southern Circle, where 669 miles of new lines were laid down. In the Northern Circle 218 miles of new boundaries were demarcated, famine labour being used on a large scale for this purpose in the Betul Division. The cost works out to 16·43 annas per mile in the Southern Circle and 10·86 annas per mile in the Northern Circle, a very great reduction on the corresponding figures of the year 1898-99. But in the Southern Circle the cost per mile in the different divisions show startling variations, it being as low as 2¼ annas per mile in Seoni and as high as R5-11-9 in the Balaghat Division. While agreeing with the Conservator that rates for demarcation must necessarily vary according to local circumstances, the Officiating Chief Commissioner cannot but express a doubt whether the payments in Seoni were on a sufficiently liberal scale, especially in a year like the past, when the forests where thrown open to the people for their relief, and payment in kind to the malguzar would be of little assistance to the labourers actually employed on the work."

Repairs were executed on a large scale, a total length of 13,556 miles of boundaries having been repaired at a cost of R6,747, which shows, however, that the work must have been generally of a light nature. At the close of the year the balance of demarcation work remaining to be done was almost entirely confined to the Chanda, Hoshangabad and Betul Divisions.

Assam.—Additions to reserves and disforestments caused an increase of 124 miles in the total length of boundaries, but of this increase only 19 miles required artificial demarcation, and 15 miles were completed at a cost of R14-3-2 per mile, leaving a balance of only four miles to be done. Almost the whole of the artificial boundaries were cleared and 4,613 boundary mounds repaired at a total cost of R2,580, or R2-4-6 per mile.

Coorg.—The clearing of the lower boundary of the Ghat forests to a width of 20 feet was continued, 20 miles being completed at a cost of R392.

Ajmer.—The pillars in tracts surveyed during the year were repaired. The boundary disputes in Ajmer remained unsettled at the close of the year.

Baluchistan.—Existing boundaries were kept in repair by the Forest establishment free of extra cost for labour.

Andamans.—No demarcation was undertaken owing to scarcity of labour.

Berar.—Owing to the famine, expenditure on demarcation was reduced as far as possible. Only 1¼ miles of boundaries were newly demarcated, and R584 were spent on repairing 845 miles of boundaries in all classes of forests. The boundaries of State forests A. and B. are stated to be in good order, but much remains to be done to those of class C.

Madras.—The outturn of work was greater than in the previous year. A total of 1,859 miles of boundaries were permanently demarcated at an average cost of R11-14-9 per mile, leaving a balance of 3,081 miles still to be done at the close of the year. The cost of re-clearing

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Photozincographed at the Office of the Superintendent Branch, Survey of India, Dehra Dun, March 1901.

No. 47-S. 01.

NOTES.—The original is the approach Map of India published under the direction of Colonel H. S. Thuillier, R.E., Surveyor General of India, in March 1900.
Additions and corrections to Railways are up to 1900.

SCHEDULE TO AREA STATEMENT.

old boundary lines was heavy, 1,425 miles costing nearly R13 per mile, which was in a great measure due to boundaries in the Godáveri Division of the Northern Circle having been neglected for too long a time; 3,709 miles were cleared by the Forest establishment free of extra cost for labour.

Bombay.—The Bombay Government thus reviews the work of the year :—

"The largest amount of demarcation work has been done in the Central and Northern Circles. The cost in the Central Circle is high, owing partly to demarcation taking the form of low stone walls where the hard ground rendered ditch and bank demarcation impossible. The cost of the latter class of demarcation is very high, and, as admitted by the Conservator, this form can be held more suitable than demarcation by cairns only if it should prove far more durable. There remain to be completed in the Central Circle 6,006 miles of demarcation as against 1,191 miles in the Northern Circle and 14,195 miles in the Southern Circle. The importance of deciding on an efficient and economical form of boundary in the Central and Southern Circles at an early date is obvious, and experiments entailing heavy expenditure should not be carried too far; the costly demarcation by Neemuch stone in the Northern Circle has proved a failure. The maximum cost of R20 per mile in the Southern Circle, promised in the Conservator's letter No. 5548, dated 29th November 1900, has been exceeded. Demarcation by cleared lines in Kanara was particularly costly, and it is not shown whether these are the first clearings five feet broad or are the final clearings 33 feet wide. If the former, an explanation of the excessive expenditure incurred should be submitted."

IV.—Surveys.

Forest survey work during the year under report presented few new features. The survey of the Chamba State, commenced in 1894, was brought to a close, and the ten years' programme in Bengal was begun by a detachment of Forest Surveys being sent to Singhbhum to survey the reserves in that division in order to supply maps for the working-plans in progress. In addition to the foregoing and some boundary surveys of minor importance in the North-Western Provinces and Oudh and the Punjab, the main operations of the Forest Survey Branch were in the Central Provinces, where field operations are now completed in all divisions with the exception of Mandla in the Northern and Chanda in the Southern Circle. In Burma, No. 20 Party, Survey of India Department, now under the administrative charge of the Superintendent of Forest Surveys, continued its work in all Circles except the Northern: the programme for next season, however, provides for a commencement of survey work in the Chindwin valley.

Survey Parties of the Survey of India Department continued their operations in Bombay, Madras and the Punjab. Minor survey work outside the authorized programme was as usual done by the local Forest officers.

The outturn of detail survey for forest purposes during the year, on the scale of 4" to the mile and over, was 4,649 square miles, of which 2,347 were surveyed by the Forest Surveys, Bengal Presidency, and 2,302 by the Parties working under the Surveyor-General. In addition to the above, the outturn of the Forest Surveys, Bengal Presidency, included 2,597 linear miles of boundary survey on the 16" scale and 244 on the 4", as well as 249 square miles of 1" survey for topographical purposes. No. 18 Party also surveyed 309 square miles of forests in Sirmur on the 2" scale. The total outturn compares favourably with that of the previous year.

It is satisfactory to note that the cost-rates in the Punjab, Madras and Burma are generally less than those of former years: those for the Central Provinces are practically the same, while those for Bombay show a slight increase; this, however, is more apparent than real, being principally due to famine charges and to the unequal incidence of the charge for supervision as compared with those for the previous year.

The following statement exhibits, in a convenient form, the outturn and cost-rates of detail survey for the year under report and for the previous year. The cost-rates include mapping and publishing charges, but not the cost of preliminary triangulation and traversing, which is included in the total expenditure:

the cost-rates of these operations are generally lower than those for former years.

Presidency or Province.	4"=1 Mile.				2"=1 Mile.				16"=1 Mile.				Total Detail Surveys on 4" scale and over.			Expenditure on Surveys.	
	1899-1900.		1898-1899.		1899-1900.		1898-1899.		1899-1900.		1898-1899.						
	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	1899-1900.	1898-99.	Total up to date. (e)	1899-1900.	1898-1899.
	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R				R	
Bengal	185	81	...	...	...	...	...	...	...	...	...	...	485	...	677	18,413	(a)
N. W. P. and Oudh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3,737	4,222	3,758
Punjab (a)	31(b)	52(b)	100	41	...	...	...	...	...	...	...	...	31	100	3,767	23,017	16,426
	108	60	52	100	...	...	...	...	...	...	...	...	108	52		33,610	23,760
Burma (a)	708	98	377	91	...	...	...	...	...	...	...	...	708	377	6,611	1,70,011	92,311
	...	...	472	192	...	...	1	220	...	...	...	...	...	473		...	1,20,813
Central Provinces	1,523	45	1,454	43	...	...	...	...	2,597 (c)	1·5 (d)	2,616 (c)	2·6(d)	1,523	1,454	13,837	82,909	82,451
Assam	...	...	...	...	...	...	...	...	...	...	...	...	...	...	522	...	...
Berar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	75	...	...
Madras (a)	1,521	58	1,350	74	...	...	...	...	...	...	...	...	1,521	1,350	7,913	1,08,180	1,00,516
Bombay (a)	329	61	425	58	236	140	254	137	55	131	55	123	679	738	7,330	72,571	69,288
Total	4,358	65	4,234	89	236	140	255	129	2,652	63	2,671	63	4,619	4,544	44,199(e)	5,14,963	4,59,677

Notes—

(a) Survey of India Department, other figures are for Forest Surveys.

(b) Not including 24½ linear miles of boundary survey in Montgomery.

(c) Linear miles.

(d) Cost-rate per linear mile.

(e) Final forest areas for which there are surveys on the 4" scale and over; all small scale surveys, boundary surveys, and all surveys which have been superseded by others, are omitted from these totals.

The usual record of forest growth and soil has been prepared for all forest tracts surveyed in the Central Provinces and the Punjab, and of the forest growth only in Bengal.

The mapping is unfortunately somewhat in arrear, but arrangements are being made to bring it up to date. The progress of the publishing depends on the amount of work which has to be done by the Trigonometrical Branch office for other Departments and cannot keep pace with the surveys. To obviate the inconvenience experienced from the delay in the issue of printed maps, advance tracings and blue prints are, whenever required, supplied for immediate use. Numerous special maps have also been prepared for working-plans and other purposes.

Details of survey work in the various provinces are given below :—

Bengal.—A detachment of the Forest Surveys commenced the 4" detail survey of the Reserved forests in Singhbhum, maps of which were urgently required for the working-plans in progress. An area of 185 square miles was surveyed, and advance tracings were supplied to the working-plan officer as the work progressed. The detachment suffered severely from malarial fever which retarded the work. The total cost for the year was R18,413, and the cost-rate for detail survey was R81 per square mile. Arrangements have been made for two detachments to continue the work in Singhbhum during 1901-1902.

Minor boundary surveys were carried out by local agency in the Darjeeling and Angul Divisions.

North-Western Provinces and Oudh.—With the exception of a boundary survey of some 15 miles of the re-aligned Nepal-Khori boundary and a re-survey of the boundaries of the Jakhan and Bidhalna Reserves in Dehra Dun, no surveys were carried out by professional agency. The survey of the newly erected monoliths in Oudh, which was included in the Forest Survey programme for the year, was postponed owing to the demarcation being still incomplete.

Punjab.—The survey of the Chamba State by the Forest Surveys, Bengal Presidency, was brought to a close; 31 square miles of forests in the Chandra Bhaga valley having been surveyed on the 4" scale in addition to 249 square miles of non-forest lands on the 1". The cost-rates

for detail survey in the Chamba State are R52 per square mile for 4″ and R12·8 for 1″ detail survey. The final rates cannot be given until the mapping now in progress is completed.

In Montgomery a boundary survey of 72 square miles of forest reserves was completed at a cost of R2,134 and an outline map on the 1″ scale was published showing the whole of the reserves in the District. In Hazara a preliminary triangulation of the Khagan forests was commenced.

In addition to the above surveys by the Forest Surveys, Bengal Presidency, No. 18 Party continued its operations in Kulu, where 108 square miles of forests were surveyed on the 4″ scale; 309 square miles of State forests in Sirmur and 40 square miles of forest tracts in Kangra were also surveyed on the 2″ scale.

Burma.—No. 20 Party, Survey of India, working under the direction of the Superintendent, Forest Surveys, surveyed 408 square miles on the 4″ scale, costing R98 per square mile. The total cost of survey operations was R1,70,041 including the cost of preliminary traverse and triangulation and mapping and publishing charges. The areas surveyed consisted of 161 square miles in the Pegu, 352 in the Tenasserim and 195 in the Southern Circle. Triangulation and traversing have been prepared for further surveys in the Ruby Mines and Attaran Divisions, and arrangements have been also made to commence the surveys of the reserves in Thayetmyo on the eastern slopes of the Mindon Yomas. The principal work of the Party will, however, for the next few years lie in the Chindwin valley.

In the Pegu Circle some boundary surveys were done by local agency, and the Land Records Department also surveyed two small reserves in the Pegu and two in the Rangoon Division. In Upper Burma, both in the Northern and Southern Circles, considerable boundary surveys and preliminary surveys of Unclassed forests were carried out by the local Forest officers.

Central Provinces.—Six Forest Survey detachments continued survey operations in the Northern and Southern Circles. In the former the survey of the Saugor, Betul, Hoshangabad and Nimar Divisions was completed and that of Mandla commenced, while in the latter, work was continued in Chanda and brought to a close in Bilaspur, Seoni and Sambalpur. In addition to the 4″ detail surveys, a survey on the 16-inch scale was made of 2,597 linear miles of exterior boundaries of reserves for convenience of comparison with settlement maps. The total area surveyed was 1,423 square miles on the 4″ scale, 760 being in the Northern and 663 in the Southern Circle. The cost-rate for the 16″ and 4″ surveys combined is R39 per square mile, or exactly the same as for the previous year. The cost of 4″ detail surveys alone comes to R45 per square mile and of 16″ boundary surveys to R1·5 per linear mile. The total expenditure on surveys for the year was R82,909, which includes charges for mapping and publishing in Chindwara and Nagpur-Wardha, in which no field surveys were done during the year.

The programme for next season provides for the continuation of survey work in Mandla and Chanda.

Assam.—A boundary survey of a proposed reserve in Lakhimpur by local agency is the only survey work reported. It is hoped that the Forest Surveys will be able to take up the survey of the more important forests in this province in 1902-1903 in accordance with the ten years' programme which has been approved by the Government of India.

Ajmer.—An outturn of four square miles of 4″ detail survey by the surveyor lent by the Superintendent of Forest Surveys is reported. As the surveyor was principally employed in laying out the annual coupes, the smallness of the outturn is easily accounted for.

Berar.—Some minor surveys of roads and boundaries were undertaken by local agency in Ellichpur. A sum of R719 was expended on the preparation and publications of taluq and other maps by the Forest Surveys.

Madras.—Nos. 9 and 19 Parties of the Survey of India Department, combined under one executive officer, surveyed 1,524 square miles on the 4″ scale in Kurnool, Cuddapah and North Coimbatore at a cost of R71 per square mile. There was an increase of 174 square miles in the outturn over that of the previous year, which explains an improvement of R3 in the cost-rate. The total expenditure on forest surveys was R1,07,632; the amount includes a contribution of 33⅓ per cent. made by the Government of India.

Minor survey operations, consisting chiefly of boundary and road surveys, were undertaken by local agency.

Bombay.—No. 17 Party, Survey of India, continued its operations in the Northern, Southern and Central Circles on the 4″, 8″ and 16″ scales. A total area of 670 square miles was surveyed. The outturn was somewhat less than that of the previous year and the cost-rates slightly in excess. This increase is explained by the decreased outturn due to the severe losses the Party

sustained from plague and other disease, and to the charge for grain compensation. The total expenditure on surveys was ₹72,571, which includes a contribution of ₹10,000 towards the survey of North Kanara.

V.—Working-Plans.

Less progress was made in the preparation of working-plans in the Bengal Presidency than in the preceding year, only nine plans, dealing with 1,422 square miles, having received the sanction of Local Governments, as compared with sixteen plans covering 3,939 square miles in 1898-99. At the close of the year working-plans were being compiled for 11,703 square miles, of which 8,178 square miles were in the Central Provinces.

Out of a total forest area of 162,866 square miles in the Bengal Presidency, 21,501 square miles, or 13·2 per cent., were under sanctioned working-plans; this percentage is much lower than that shown in recent years, and is due to the inclusion for the first time of the Unclassed forests of Burma in the total area under the Forest Department. As a rule, however, only the reserves and a very small proportion of the Protected forests are ripe for or require systematic working-plans, so that the percentage given above does not convey a proper idea of what has been done or remains to be done towards bringing suitable areas under working-plans. Of the 57,413 square miles of Reserved forests in the Bengal Presidency, 17,713 square miles, or 30·85 per cent., and of the 6,839 square miles of Protected forests, 3,788 square miles or 55·38 per cent., were under sanctioned working-plans at the close of the year. In the North-Western Provinces and Oudh working-plans have been prepared and sanctioned for 84 per cent. of the total area of Reserved and Protected forests.

In Madras the compilation of working-plans was in progress for 2,178 square miles, of which 768 square miles were taken in hand during the year.

Working-plans are shown to be under preparation in Bombay for very large areas, but it is not known whether the work undertaken over the whole of these areas is such as usually pertains to the compilation of regular working-plans.

The following tables show the progress made in working-plans:—

(A)

Areas brought under the control of sanctioned Working-Plans up to 30th June 1900 in the Provinces of the Bengal Presidency.

Province.	Forest Area, in square miles.				Area for which working-plans were prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned working-plans.
	Reserved.	Protected.	Unclassed State.	Total.		
1	2	3	4	5	6	7
					Square miles.	Per cent.
Bengal	5,881	3,675	4,033	13,589	4,479	33
North-Western Provinces and Oudh	4,049	30	43	4,122	3,448	83·6
Punjab	2,891	2,473	3·837	9,201	2,632	28·6
Burma (Lower)	8,736	...	42,151	50,887	1,761	3·5
Burma (Upper)	8,418	...	30,112	38,530	116	0·3
Central Provinces	18,915	...	181	19,096	7,490	39·2
Assam	3,609	...	16,452	20,061	533	2·6
Berar	4,176	...	...	4,176	725	17·4
Coorg	238	661	...	899	178	20
Baluchistan	205	...	...	205	...	...
Andamans	156	...	1,795	1,951	...	...
Ajmer	139	...	10	149	139	93·3
Total	57,413	6,839	98,614	162,866	21,501*	13·2†

N.B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement.

* At the beginning of the year this stood at 20,348, which was reduced by 185 square miles owing to transfers, etc., during 1899-1900, leaving 20,163, which added to 1,338 as newly sanctioned areas = 21,501 square miles—see Table (C).

† In the preceding years the percentage was much higher because the unclassed forests in Upper and Lower Burma were not considered and included in those years.

(B)

Progress made in Working-Plans in the Provinces of the Bengal Presidency during 1899-1900.

Province.	Preliminary proposals submitted to the Inspector-General of Forests for working-plans.		Completed plans submitted for opinion and remarks of Inspector-General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector-General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
		Square miles.		Square miles.		Square miles.
Bengal	...	...	...	...	1	183
North-Western Provinces and Oudh. — Central Circle	1	4	...	...	...	5 (a)
North-Western Provinces and Oudh. — Oudh "	...	...	...	...	...	...
North-Western Provinces and Oudh. — School "	...	...	1	67 (b)	1	67 (b)
Punjab	2	1,182 (f)	3	208 (c)	2	132 (c)
Burma (Lower) — Pegu Circle	...	...	...	...	...	...
Burma (Lower) — Tenasserim Circle	...	...	...	...	...	...
Burma (Upper) — Northern "	...	...	...	...	...	...
Burma (Upper) — Southern "	1	127	1	206	...	...
Central Provinces — Northern "	3	2,433	1	512	...	...
Central Provinces — Southern "	...	...	2	1,224	3	989
Assam	...	...	...	...	...	...
Berar	...	...	1	123 (d)	...	...
Coorg	...	...	1	18 (e)	2	46 (e)
Baluchistan	...	...	...	...	...	...
Andamans	1	156	...	...	...	...
Ajmer	...	...	...	...	...	...
Total	8	3,902	10	2,358	9	1,422 (g)

(a) Kanari forest added to the Kumaun Working-Plan during the year.

(b) The working-plan for the Tehri-Garhwal teased chir forests was recast; the area was accounted for in the previous year.

(c) Includes 4 square miles of old areas now revised.

(d) This is a provisional working-plan for the Germataragaon forests, Buldana District, which will be made permanent hereafter.

(e) Includes 13 square miles of old areas now revised.

(f) Includes 156 square miles (approximate) of the deodar forests of Bhadarwah, Kashmir State.

(g) The actual progress for new areas is 1,422−98 = 1,324 square miles.

(C)

Comparative statement of progress made in Working-Plans during 1899-1900.

Province.	Areas for which Working-Plans have been completed and sanctioned.		Areas for which Working-Plans are being compiled.		Areas for which Working-Plans have still to be taken in hand.	Total Forest area as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year			
1	2	3	4	5	6	7	8
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	
Bengal	(a)1,296	183	110	731	8,269	13,589	(a) Last year the area was 4,437 square miles, of which 141 square miles have been transferred to the Civil Department for cultivation.
North-Western Provinces and Oudh. — Central Circle	(b)1,546	5	...	4	(c)375	1,930	(b) Area reduced by one square mile.
North-Western Provinces and Oudh. — Oudh ,,	(d)1,105	...	(e)141	...	64	1,310	(c) This should really be 365, because working-plans for ten square miles, included in column 2, are for Cantonment and Municipal forests not included in column 7 (Naini Tal Cantonment, 4; Naini Tal Municipal, 2; Ranikhet Cantonment, 7).
North-Western Provinces and Oudh. — School ,,	(b)792	...	66	11	13	882	
Punjab	(f)2,504	128	1,397	...	(g)5,173	9,201	(d) Area reduced by one square mile; include 78 square miles of open forests dealt with in the Pilibhit plan, for which a new plan is under preparation.
Burma (Lower) — Pegu Circle	1,023	...	...	...	(h)15,631	16,654	
Burma (Lower) — Tenasserim Circle	738	...	440	...	(h)33,055	34,233	
Burma (Upper) — Northern Circle	37	...	...	...	(h)19,755	19,792	(e) Excluding 78 square miles referred to in (d).
Burma (Upper) — Southern ,,	79	...	493	110	(h)18,056	18,738	
Central Provinces. — Northern Circle	(i)1,493	...	6,592	...	(j)1,463	9,548	(f) Includes six square miles for the Simla Municipal and catchment-area forests not included in the area given in column 7.
Central Provinces. — Southern ,,	(k)5,008	989	1,586	...	(l)1,965	9,548	
Assam	533	...	....	...	(m)19,528	20,061	(g) This should really be 5,179; it has been reduced by six square miles to agree with column 7, see (f).
Berar	725	...	...	...	3,451	4,176	
Coorg	116	33	22	...	699	899	(h) These unclassed forest areas were not included in previous years.
Baluchistan	...	....	...	...	205	205	
Andamans	...	....	...	....	1,951	1,951	(i) According to last year's statement, this should be 1,537, but during 1899-1900, 44 square miles were excluded for cultivation.
Ajmer	139	...	...	...	10	149	
Total Bengal Presidency	(n)20,163	1,338	10,847	856	129,622	162,866	(j) Marked out for disforestation; require no working-plans.
Madras Presidency.* — Northern Circle	23	49	901	142	5,863	6,978	(k) Increased by three square miles owing to transfer of area.
Madras Presidency.* — Central ,,	9	108	202	612	6,221	7,152	(l) No plans are required for 1,571 square miles which have been excised for cultivation.
Madras Presidency.* — Southern ,,	107	62	307	14	5,029	5,519	
Madras Presidency.* — Total	139	219	1,410	768	17,113	19,649	(m) Includes 16,462 square miles of unclassed forests for which working-plans are not required at present.
Bombay Presidency.* — Northern Circle	637	4	...	491	(o)1,192	2,324	(n) According to last year's statement, this should be 20,348, but during 1899-1900 it was reduced by 185 square miles owing to transfers, etc.—see (g), (i), (d), (f) and (k).
Bombay Presidency.* — Southern ,,	681	12	517	158	(p)3,930	5,298	
Bombay Presidency.* — Central ,,	—	...	4,260	...	2,000	6,260	
Bombay Presidency.* — Sind ,,	...	...	369	243	452	1,064	(o) Includes 679 square miles of leased forests in the Dangs.
Bombay Presidency.* — Total	1,318	16	5,146	892	7,574	14,946	(p) Includes 30 square miles of pasture reserves not to be organized.

* *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

Details of work done in the various provinces are as follow :—

Bengal.—The working-plan for the whole of the forests of the Jalpaiguri forests, 183 square miles, was sanctioned. A plan for the Reserved forests in the Singhbhum District was taken in hand, and with that under preparation for the Puri Division made a total of 841 square miles of forests for which working-plans were being compiled. The total area for

which working-plans had still to be taken in hand was 8,262 square miles at the close of the year, but it is understood that there is no necessity for working-plans for a large portion of this area.

North-Western Provinces and Oudh.—In the Central Circle the inclusion of the Karari forest (five square miles), recently reserved, in the Kumaon working-plan was sanctioned, and a plan for the Muktesar forest (four square miles) was drawn up. In the Oudh Circle, the working-plan for the Tulsipur forests, Gonda, was re-written, but had not been submitted for sanction at the close of the year; the completion of the Pilibhit working-plan awaited final orders regarding concessions and other points; a revision of the plan for the Trans-Sarda forests, Kheri, was taken in hand. In the School Circle, the new working-plan for all the Government forests in Jaunsar and the leased forests in Raiengarh and Dadi remained under preparation.

Punjab.—A working-plan for the South Kabirwala and Mailsi forests (11¼ square miles), in the Multan Division, was sanctioned, as well as a revised plan for the Kalesar sál forest. Working-Plans were being compiled for a total area of 1,397 square miles, but no new areas were taken in hand during the year.

Burma.—No new working-plans received sanction, and only 110 square miles in the Pyinmana Division were added to the area for which regular plans were being compiled. A Working-Plans Party continued to be employed in the Toungoo Division of the Tenasserim Circle, and linear valuation surveys were carried out on a considerable scale in the Southern Circle.

Central Provinces.—In the Southern Circle three working-plans, for an aggregate area of 989 square miles in the Balaghat and Raipur Divisions, were sanctioned, and plans dealing with 1,586 square miles were under preparation. In the Northern Circle working-plans for the forests of the Jubbulpore, Betul and Damoh Divisions were completed, but only that for the first-named Division had been submitted for approval and sanction by the close of the year.

The prevalence of famine caused a small demand for timber and fuel, and large areas that should have been felled over under the provisions of the working-plans remained uncut.

Assam.—No new working-plans were under preparation. The Government of India remark in their review of the year's work:—

"The total area of reserved forests was 3,609 square miles at the close of the year, of which only 533 square miles had been brought under working-plans, owing mainly to the fact that, outside the Goalpara and Garo Hills Divisions, there is not at present such a demand as would lead to systematic working of the forests. The Government of India trust that, where such a demand exists, the need of a working-plan will not be overlooked, and they consider that some simple plans of operations should be drawn up for the sál forests in Kamrup and Nowgong, to provide for the assistance of the growing crop by thinnings, the cutting back of inferior species, and the utilization of dead trees. There was a satisfactory increase in the number of sál trees cut in the Goalpara forests, where fellings in past years have been greatly in arrears as compared with the material available under the working-plan prescriptions."

Coorg.—The working-plans for the Dubare and Devamachi-Mawkal forests were sanctioned. No progress was made with the Jainkal working plan.

Ajmer.—The Commissioner remarks:—

"Operations under the working-plan were greatly restricted in consequence of the famine. Of 11,421 acres prescribed for fellings, only 782 acres were felled. The villagers extensively resorted to cutting and selling wood from their own holdings, and the price of fuel remained so low that fuel from distant working units could not be brought to market and sold at a profit."

Baluchistan.—Nothing yet necessary under this head.

Andamans.—Data were collected for revised proposals for a working-plan.

Berar.—Provisional working plans have been completed for the greater part of the forests, but only two of these plans have been submitted for scrutiny by the Inspector General of Forests. It is hoped that it will be possible to modify these provisional plans so that they may be sanctioned as permanent plans for lengthened periods.

Madras.—Working-plans for 219 square miles of forests were sanctioned during the year, and plans for 2,278 square miles were being compiled. The Madras Government in reviewing the annual report remarks:—

"A marked feature of the year's work was the stimulus given to the preparation of working-plans by the visit of Mr. Ribbentrop, late Inspector-General of Forests. Mr. Ribbentrop laid stress on the importance of spreading a network of working-plans over the whole area of reserves and explained the simple nature of the plans required for the greater portion of the reserves. Under his advice a special Forest officer has been appointed for each Circle to draw up under the immediate direction of the Conservator working-plans for those localities which cannot conveniently be dealt with by the District Forest officers. The report contains distinct evidence that the arrangements made will lead to a considerable advance in this important branch of forest administration."

Bombay.—In the Northern Circle a working-plan for a small area of four square miles in Surat was completed, but was not sanctioned until after the close of the year. Work in this

Circle was hindered by the employment of the working-plans officer on grass operations connected with the famine. Form No. 50 for the Central Circle shows that working-plans were being completed for 4,260 square miles, and apparently none have yet received the sanction of Government. Work during the year in this Circle appears to have consisted chiefly in laying out compartments both on the ground and on maps, and in demarcating them. In the Southern Circle working-plans for 12 square miles were completed, and others were being prepared for 675 square miles. Some line-clearing and survey work was also done by the working-plans party. In Sind working-plans for the Jerruck and Naushahro forests were completed but were not submitted for sanction, and the Hyderabad plan was being printed. A considerable length of compartments lines was cut.

VI. Communications and Buildings.

The total expenditure on roads, path and bridges amounted to R1,50,000, as compared with R1,47,600 in the preceding year. In the Bengal Presidency there was an increase under the head of new work, owing to a greater length of roads and bridle-paths having been constructed in Bengal, while the cost of repairs was the same as in the previous year. The largest amount of work was carried out in Madras, where 127 miles of cart-roads and 42 miles of bridle-paths were constructed at a cost of R18,931, and repairs to roads and paths (593 miles) cost R14,298, as compared with R5,376 in 1898-99. In Bombay the expenditure on both new work and repairs was considerably in excess of that in the previous year, but it is understood that a portion has been charged to famine works.

On buildings a total expenditure of R2,92,235 was incurred, as against R2,49,700 in the previous year. New buildings cost R1,98,367, of which R67,887 were spent in Burma; but this includes R37,258 charged in the accounts of the Public Works Department for the Tharrawaddy Forest School buildings and a house at Thayetmyo. The most important new work in other provinces was undertaken in the North-Western Provinces and Oudh, the Punjab and Madras. The cost of the maintenance of buildings was slightly less than in the preceding year, and out of a total expenditure of R93,900, the sum of R21,300 was incurred in Madras. Good progress was made in most provinces in providing quarters for the subordinate establishment, especially in the North-Western Provinces and Oudh.

The following statement shows the expenditure on communications and buildings in the various provinces:—

Province.	New Work.		Repairs.		Other works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	R	R	R	R	R	R
Bengal	18,252	14,895	9,904	7,358	3,184	53,593
North-Western Provinces and Oudh	32,848	10,857	17,887	23,185	7,854	1,02,627
Punjab	31,573	4,186	5,137	3,028	22,775	66,699
Burma	67,887	4,271	16,166	1,993	...	*89,317
Central Provinces	6,202	997	5,723	2,682	489	16,093
Assam	2,765	2,935	8,937	3,313	1,320	19,071
Coorg	3,075	219	463	1,296	374	5,427
Ajmer	270	387	134	...	76	867
Baluchistan	77	...	60	...	...	137
Andamans	1,828	1,284	475	677	...	4,264
Berar	4,847	1,610	2,751	5,638	1,897	16,743
Total Bengal Presidency	1,69,419	41,642	66,637	59,171	37,969	3,74,838
Madras Presidency	22,612	18,931	21,319	14,298	9,148	86,308
Bombay „	6,336	8,892	5,912	7,131	381	28,652
GRAND TOTAL	1,98,367	69,465	93,868	80,600	47,498	4,89,798

* In Form No. 61 the total of XVII is shown as R53,902. The difference is due mainly to the inclusion in the above figures of R37,000 for work in the Pegu Circle done by and debited to the Public Works Department. In Form No. 61, on the other hand, R1,400 are included on account of clearing streams in the Tenasserim Circle—an item of work which is not mentioned in Form No. 61.

The details of the most important works carried out in the different provinces were as follows :—

Bengal.—The total length of new roads and bridle-paths constructed was 84 miles, most of the work being done in the Darjeeling, Singhbhum and Angul Divisions. Serious damage was caused to roads and paths in the Darjeeling district by a heavy storm in September 1899.

The Divisional headquarters house at Dumka, Santhal Parganas, was completed at a total cost of ₹8,918. An inspection bungalow at Chilapatha, Buxa Division, and a rest-house at Raigoda in the Angul Division, were completed, the total cost being respectively ₹527 and ₹1,328. Three revenue-station houses were reconstructed in the Sundarbans at a cost of ₹3,290, and various buildings were in different stages of progress elsewhere. New range quarters were completed at Ramshahi hât (Jalpaiguri), Chilapatha and Rangamatti (Buxa).

The total expenditure on roads was ₹22,547, and that on buildings ₹29,303, as compared with ₹19,230 and ₹35,739, respectively, in 1898-99.

North-Western Provinces and Oudh.—One hundred and twenty-six miles of new cart-roads and bridle-paths were constructed, but no large projects for opening up communications were undertaken during the year. Rupees thirty-three thousand, one hundred and eighty-six were spent on the maintenance of 4,091 miles of roads and bridle-paths, a large proportion of the expenditure being incurred on the up-keep of cart-roads in the Kumaon and Garhwal Divisions of the Central Circle.

As compared with the previous year there was a considerable increase in the expenditure on buildings, which was due, to a great extent, to the building of quarters for the subordinate establishment, especially in the Central and Oudh Circles, and to the construction of various rest-houses. The total expenditure compares as follows with that of the previous year :—

	Roads.	Buildings.
	₹	₹
1898-99	40,550	35,680
1899-1900	44,043	50,730

Punjab.—Seventy-four miles of new bridle and other paths were constructed, chiefly with a view to rendering forests in the hills more accessible and for inspection purposes: most of this work was carried out in Bashahr and Kulu. The maintenance of 613 miles of roads and paths cost ₹3,028.

The expenditure on buildings was ₹36,710, as compared with ₹17,912 in the preceding year. This large increase was due to the purchase of an office at Lahore for the Conservator of Forests and the Lahore Divisional Officer, at a cost of ₹19,019. Rest-houses were constructed at Dhamtal (₹1,558), a small one at Triund (₹986) in the Kangra Division, and those at Nathiagali (₹2,245) Hazara Division, and Patriata in the Rawalpindi Division were completed. A Divisional office was completed at Kotgarh, Bashahr Division, for ₹1,321, and one at Simla was built at a cost of ₹1,807. A number of quarters for subordinates were constructed. Buildings were made in the Kangra Division for the resin industry, and cost ₹2,738.

Burma.—In the Pegu Circle 26 miles of cart-roads and bridle-paths were made at a cost of ₹608, and the construction of two timber bridges in the Rangoon depôt cost ₹1,886. In the Toungoo Division of the Tenasserim Circle ₹2,951 were spent on improving streams in reserves, and in the South Tenasserim Circle 15 miles of road cost ₹200. Fifty-five miles of bridle-paths were made in the Northern Circle for ₹1,083, but no work of importance was carried out departmentally in the Southern Circle. The Bombay-Burma Trading Corporation are reported to have constructed 195½ miles of temporary roads for the extraction of timber, and to have spent ₹3,318 in the clearing of streams in the Southern Circle.

In the Pegu Circle the cost of constructing Forest School buildings and quarters at Tharrawaddy, (₹27,395) and a house for the Divisional Officer at Thayetmyo (₹9,863) were charged in the accounts of the Public Works Department. The Henzada Forest office building was completed at a total cost of ₹2,243. Four rest-houses were built in the Thayetmyo, Tharrawaddy, Rangoon and Henzada Divisions, and seven others in various Divisions were completed or begun. ₹2,341 were spent on quarters for subordinates in the Prome, Rangoon, Bassein and Agency Divisions. Repairs to buildings cost ₹4,574.

In the Tenasserim Circle two rest-houses were built in the Toungoo Division (₹1,600), one at Mergui (₹524), and quarters for the Divisional Officer at Tavoy were partly constructed at a cost of ₹3,484. The maintenance of buildings in repair cost ₹2,749.

In the Northern Circle ₹4,482 were expended on new buildings, of which the most important were three rest-houses in the Bhamo Division and two in the Katha Division, and ₹3,305 were spent on repairs.

In the Southern Circle three new rest-houses were built in the Ruby Mines Division (R1,750), two at Lewun and Mohuit in the Pyinmana Division (R900), and 14 temporary rest-houses in the Minbu Division (R798). The cost of repairs in this Circle amounted to R4,538.

Central Provinces.—In the Southern Circle 53 miles of cart-roads were made at a cost of R749, in order to facilitate the export of forest produce. Owing to financial pressure only absolutely necessary repairs were carried out; 1,171 miles of cart-roads were repaired at a cost of R2,496. Twenty-six miles of cart-roads were constructed in the Northern Circle for R129, and repairs to 58 miles cost R14.

In the Hoshangabad Division 151 miles of roads were constructed and 27 wells sunk with famine labour, and similar work on a smaller scale was carried out in the Chanda and Nagpur-Wardha Divisions.

Eighty-one buildings were constructed in the Southern Circle at a cost of R3,718, and, excepting one rest-house built on the Balaghat-Behar road, consisted of quarters for Forest Rangers and Guards. The Conservator, however, remarks that in most Divisions the accommodation for the subordinate staff is ill devised and insufficient. In the Northern Circle R1,717 were spent on new work, of which R1,363 were on account of houses for the superior staff, and repairs to existing buildings cost of R4,922.

Assam.—Three miles of bridle-paths through the Charduar plantation were converted into driving roads at a cost of R2,453, and 25 miles of inspection-paths in Kamrup were constructed for R429. The maintenance of about 201 miles of roads and paths cost R3,313.

Under "Buildings" only R2,565 were spent on new works, which consisted principally of quarters for the subordinate staff in Goalpara, Kamrup, Sylhet and the Garo Hills. Repairs to existing buildings cost R8,937.

Coorg.—One mile of cart-road was constructed (R43) and the bridle-path between Kutumpole and Nalknad was extended by 12 miles. The construction of export roads in all except the Ghat forests is stated to be complete.

Range quarters were built at Murkal at a cost of R545. The Sandal Koti at Fraserpet was improved, and three tiled huts were constructed for Guards.

Ajmer.—Five miles of forest roads were constructed at a cost of R357. Some roads were improved and others constructed by famine labour, which will prove useful for the export of forest produce. Rupees two hundred and seventy were spent on the part construction of Range quarters at Raoli, and R134 on the improvement and repair of buildings.

Baluchistan.—No expenditure was incurred on roads or paths. Two huts for Forest Guards were built at Ziarat by the establishment, the only cost being R15 on the carriage of timber, and R62 were spent on additions to quarters at Sibi.

Andamans.—Under "Communications" R1,284 were expended on the extension of tramways, and R677 on the up-keep of seven miles of tramways.

The expenditure incurred on new buildings was R1,838, of which R1,144 were on account of materials for a house built at Wimberleygunj for the Extra-Assistant Conservator, the rest being for the construction of barracks and quarters for the subordinate establishment.

Berar.—Eight miles of cart-roads were constructed at a cost of R1,322, and nine miles of bridle-paths for R288, chiefly in the Ellichpur and Wun Divisions. The sum of R5,193 was spent on the maintenance of 574 miles of cart-roads, and R445 on repairing 252 miles of bridle-paths, nearly all of which were in the Ellichpur Division.

A rest-house was built at Korat (R1,230), and three others were under construction. Rupees eight hundred and ninety-eight were spent on quarters for the subordinate establishment.

A number of new wells were made, and old ones deepened, but in the Melghat most of such work was paid for by the Public Works Department, or was carried out by famine relief labour.

Madras.—The expenditure on roads and bridges was R33,299 as compared with R38,614 in the preceding year.

In the Northern Circle 74 miles of cart-roads (R10,493) and 21 miles of bridle-paths (R807) were constructed, most of the former being in Godaveri, Kistna and Kurnool, and the latter in the Anantapur District.

Eleven miles of cart-roads were constructed in the Central Circle at a cost of R3,385; of this sum R2,450 were spent on extending by two miles the Patracad Ghat road in North Arcot. In the Southern Circle R4,246 were expended on new works, including 42 miles of cart-roads and 21 miles of bridle-paths, the principal item being the construction of 35 miles of roads in North Coimbatore. Repairs in all three Circles amounted to R14,298, of which R11,116 were spent in the Southern Circle where 311 miles of cart-roads were repaired. In South Coimbatore the installation of a wire ropeway at Mount Stuart apparently cost R3,654.

The sum of R43,931 was spent on buildings, against R49,409 in 1898-99, the chief expenditure being in the Southern Circle. The most important works in the Northern Circle were the construction of a rest-house at Chulakanchalli in Bellary, the completion of another at Rollapalli in Anantapur, and important repairs to rest-houses in Kurnool. In the Central Circle a few rest-houses were built and others were in course of construction. In the Southern Circle R1,794 were spent on the partial construction of a forest office at Nilambur in South Malabar, and R3,764 on that of a godown for minor forest produce in North Coimbatore; the Kadikirest-house in South Canara and some buildings in Madura were also completed.

The tramway in Cuddapah was transferred to Nellore. The substitution of bullocks for men to drag the trucks was introduced in Nellore with considerable success. A length of three furlongs was added to the tram line in South Coimbatore.

Bombay.—The total expenditure on roads and paths was R16,023. Of R3,378 spent on new work in the Northern Circle, R3,083 were on account of constructing 3¼ miles of feeder road in Central Thana, but apparently this was debited to Famine works although shown in Form No. 51. In the Central Circle several roads were completed or under construction through the agency of the Public Works Department in the Khandesh, Nasik and Poona Divisions. In the Southern Circle six miles of roads were constructed in Dharwar (R924), and R4,590 were spent in the Northern Division, Kanara, on collecting metal for eight miles of feeder road and the completion of the Nagargali road. The maintenance of cart-roads in Kanara and Belgaum was mainly responsible for an expenditure of R6,150 on repairs.

A total sum of R12,248 was incurred on buildings. In the Northern Circle R1,069 were spent on new work consisting chiefly of the construction of 14 forest posts, and R1,684 on repairs. The Sholapur Divisional office in the Central Circle was completed at a total cost of R3,472 by the Public Works Department; rest-houses were built at Deozari and Langra-Anaba (R1,481) and various quarters for Guards, etc., were constructed. In the Southern Circle two watch-houses were built and one well sunk in the Western Division, Kanara; the up-keep of existing buildings cost R2,933. In Sind only R90 were spent on new work, and R650 on repairs.

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CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

The total number of cases disposed of by the Courts was slightly less than in the previous year, but the only differences worth mentioning in the various provinces were in Madras and the Punjab, where there was a decrease and increase of 402 and 259 cases, respectively. The percentage of convictions rose to 85 per cent., owing to a marked improvement in Bombay. The number of cases actually compounded in the Bengal Presidency was 145 less than in the preceding year, whereas in Madras and Bombay there were increases, respectively, of 1,584 and 803 cases. The number of cases disposed of by the Courts and compounded in the different provinces are compared with the previous year's figures in the following table :—

Provinces.	Number of cases disposed of by the Courts.		Number of cases Compounded.		Total.		Proportion of Convictions to the total number of cases decided by the Courts.	
	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.
							Per cent.	Per cent.
Bengal	343	302	1,946	2,057	2,289	2,359	87·7	90·4
North-Western Provinces and Oudh.	159	130	483	445	642	575	82·4	89·2
Punjab	1,335	1,076	2,564	1,912	3,899	2,988	83·5	79·6
Burma	663	753	1,485	1,913	2,148	2,666	75·0	81·5
Central Provinces	267	235	3,597	4,207	3,864	4,442	76·2	78·7
Assam	109	83	246	248	355	330	82·6	82·9
Coorg	28	35	59	42	87	77	67·8	85·7
Ajmer	385	369	454	332	809	701	92·1	95·0
Baluchistan	90	53	223	151	303	204	51·2	88·6
Andamans	1	...	...	...	1	...	...	...
Total	3,380	3,035	11,057	11,307	14,387	14,342	82·7	83·7
Berar	142	93	960	855	1,102	948	76·8	77·4
Total Bengal Presidency	3,472	3,128	12,017	12,162	15,489	15,290	82·5	83·5
Madras Presidency	5,295	5,697	11,654	10,070	16,949	15,767	87·3	86·8
Bombay ,,	1,802	1,785	7,932	7,129	9,734	8,914	82·8	73·6
GRAND TOTAL	10,569	10,610	31,603	29,361	42,172	39,971	85·0	83·6

In the following table the offences are classified in accordance with their character :—

Provinces.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				
	Injury to forests by fire.	Unauthorised felling or appropriation of wood and minor forest-produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Grand totals of class.
Bengal	50	209	21	84	1	4,213	576	216	405	11	6	...	456	1,124	603	300	2,482
North-Western Provinces and Oudh	118	161	22	119	23	1,529	157	77	218	219	...	...	123	912	195	46	1,276
Punjab	676	1,000	33	226	19	1,552	1,122	571	113	38	...	2	221	2,551	1,555	799	5,126
Burma	113	512	18	20	...	2,736	201	191	136	331	...	1	249	3,579	219	212	4,259
Central Provinces	106	73	28	60	12	2,736	769	181	...	...	...	...	118	2,809	797	241	3,965
Assam	2	230	2	55	...	138	...	16	...	...	...	...	2	368	2	71	443
Coorg	...	52	30	...	...	326	2,230	101	...	10	165	...	...	388	2,395	101	2,884
Ajmer	...	...	...	...	...	28	195	...	10	9	60	2	10	37	255	2	304
Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	21	94	2	29	53	762	110	31	27	43	1	1	111	899	113	55	1,178
Total Bengal Presidency	285	2,482	601	456	225	8,360	2,913	1,319	285	337	78	11	1,155	11,680	3,622	1,610	18,367
Madras Presidency	25	3,162	2,257	405	16	10,113	1,515	505	232	282	237	5	273	13,557	3,909	915	18,654
Bombay ,,	113	1,141	391	233	93	1,347	7,233	699	1,577	1,469	1,602	53	1,908	7,177	9,264	983	19,332
Grand Total	423	6,785	3,252	1,094	334	19,798	11,621	2,315	2,289	3,033	1,357	123	3,336	29,672	16,223	3,558	53,149

As compared with the preceding year, there was a large increase of 4,290 in the total number of breaches of the forest laws. This increase took place entirely under the head of compounded cases, and occurred chiefly in Madras, Bombay and the Punjab, where it was attributed to scarcity caused by the famine.

Of the total number of new cases, 56 per cent. were those of unauthorized felling or appropriation of wood and minor forest produce, and 7,467, or 14 per cent., were cases in which the offenders remained undetected. The total number of cases of setting fire was 3,686, or 208 less than in the previous year, to which Bombay contributed 1,908, and the Central Provinces and Madras 768 and 323, respectively. The majority of these offences remained as usual undetected, but, as compared with the previous year, there was a slight general improvement in respect to such cases, the percentage of which fell from 80 to 78·6 per cent., although in Bombay the same high percentage of 89 was maintained.

II.—Protection from Fire.

The total forest area over which special measures of protection from fire were undertaken was 32,737 square miles, or an increase of 472 square miles as compared with the previous year. There was a considerable increase in the area attemped in Burma, the Punjab, and the North-Western Provinces and Oudh, whilst, on the other hand, there was a large decrease in the Northern Circle, Central Provinces. The prolonged drought made the season in almost all provinces most unfavourable for fire-protection, so the fact that 93 per cent. of the total area was protected is very satisfactory. In the Punjab the comparative immunity which the forests enjoyed from serious fires was attributed to the people being more careful to prevent fires in a season when fodder was so scarce, and the same reason is given for the improvement shown in Bombay. The very unsatisfactory results of fire-protection in Coorg appear to have been partly due to departmental mismanagement. In Ajmer there was nothing left on the ground which could take fire, and so no protective establishment was employed. The large decrease in the average proportion of area under fire-protection to the total area of forests is due to the inclusion in the latter of the unclassed forests in Burma for the first time. The details and the cost of the work done in the various provinces are shown in the following table :—

Province.	Area in square miles.				Proportion of Failures to area Attempted.		Cost				Proportion of area under fire-protection to total area of forests (*leased* forests included.)	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.
					Per cent.	Per cent.	*R*	*R*	Pies.	Pies.	Per cent.	Per cent.
Bengal	2,114	2,089	1,920	2,052	9	2	7	6	2	1½	16	15
North-Western Provinces and Oudh	3,222	3,031	3,152	2,956	2	4	21	20	6	6	73	75
Punjab	866	356	783	335	2	6	3	18	2	5	9	5
Burma	3,810	3,167	3,478	2,447	9	22	30	31	9	10	4	70
Central Provinces	4,757	5,460	4,590	5,072	4	3	10	9	3	3	25	28
Assam	1,189	1,201	1,165	1,202	2	...	10	7	1	2	6	6
Coorg	204	201	151	195	26	4	36	31	11	9	22	22
Ajmer	139	139	149	139	...	...	½	2	...	1	100	93
Total	16,251	15,690	15,388	14,398	5	8	17	16	5	5	10	19
Berar	1,473	1,473	1,454	1,421	1	4	9	9	3	3	35	35
Total Bengal Presidency	17,724	17,163	16,842	15,819	5	8	16	15	5	4½	10	21
Madras Presidency	5,136	5,126	4,855	4,911	5	4	7	7	2	2	26	26
Bombay	9,877	9,976	8,904	8,732	10	12	4	4½	1	1	60	72
GRAND TOTAL	32,737	32,265	30,601	29,492	7	8½	10	10½	3	3	16	27

The subjoined table analyzes the origin of the fires reported :—

Province.	(A.) Fires caused by accident or through carelessness in burning fire-lines.		(B.) Fires entering the forests by crossing exterior fire-traces.		(C.) Fires commencing inside the reserve or fire-traced area.																Total of (A), (B), and (C).	
					By workmen employed in the forests by purchasers of forest-produce and by *yak*-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightning or by fire balloons.		By intentional firing.						Causes unknown.			
													In order to obtain new grass.		In order to burn coal game or to reduce cover.		Maliciously.		Total.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
Bengal	16	4,576	20	14,291	2	61	24	39,066	2	1,220	...	...	34	31,210	21	19,452	10	10,297	65	60,959	53	79,701	182	199,940
North-Western Provinces and Oudh. — Central Circle	1	15	2	95	5	1,050	1	12	...	...	5	1,745	...	...	...	...	2	967	2	967	4	617	20	4,481
Oudh ,,	4	1,203	22	9,025	2	2,239	...	...	2	3	1	5	31	11,579	2	1,020	8	2,301	41	15,500	8	2,029	80	30,004
School ,,	9	447	2	28	4	344	2	13	1	5	4	1,533	3	7,151	...	...	...	...	3	7,151	3	774	28	10,235
Total	14	1,665	26	9,148	11	3,633	3	25	3	8	10	3,283	34	18,730	2	1,020	10	3,268	46	23,708	15	3,370	128	44,820
Punjab	3	463	19	118	38	642	86	6,298	...	...	8	143	46	6,510	1	8	4	27	51	6,545	22	257	227	14,466
Lower Burma — Pegu Circle	10	6,352	30	19,468	4	4,295	3	127	...	...	...	...	...	...	1	60	2	9,165	3	9,225	31	60,852	81	100,220
Tenasserim Circle	3	159	7	6,978	1	300	2	16	...	...	...	...	...	...	...	...	1	196	1	196	1	...	15	8,149
Total	13	6,511	37	26,446	5	5,005	5	143	...	...	...	...	...	...	1	60	3	9,361	4	9,421	31	60,852	95	117,378
Upper Burma — Northern Circle	6	2,373	9	16,697	2	5,540	6	19,018	...	...	1	4	...	...	...	...	1	1	1	1	1	220	25	43,913
Southern ,,	1	16	20	17,029	3	2,463	14	30,479	...	...	...	...	...	...	...	...	1	...	1	...	21	3,776	60	53,763
Total	7	2,389	29	33,726	5	8,003	20	49,497	...	...	1	4	...	...	...	...	2	1	2	1	22	4,056	86	97,676
Central Provinces — Northern Circle	33	40,743	28	39,707	89	114,160	10	2,776	14	8,142	...	...	4	2,601	4	632	7	14,098	15	17,331	74	31,651	263	504,819
Southern ,,	10	362	24	18,656	7	2,539	32	4,641	1	2	...	...	22	101,264	5	9,340	32	3,184	39	113,788	108	132,600	221	272,673
Total	43	41,105	52	58,363	96	116,699	42	7,417	15	8,150	...	...	26	103,865	9	9,972	19	17,282	54	131,119	182	214,314	484	577,497
Assam	2	152	10	10,233	...	...	6	5,691	...	...	...	...	...	...	1	4	...	...	1	4	1	8	20	15,491
Coorg	11	366	3	170	...	...	...	...	...	...	...	...	...	...	...	...	16	14,600	16	14,600	21	18,364	51	34,100
Ajmer	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	4	131	1	140	19	10,916	1	146	...	...	...	...	...	...	...	...	1	24	1	24	3	1,155	34	12,542
Madras — Northern Circle	3	825	5	10,384	4	1,296	29	1,514	...	...	...	...	2	2,400	1	100	3	8,140	6	10,700	48	15,733	95	40,452
Central ,,	4	135	36	5,742	5	315	8	63	2	7	...	...	32	4,705	2	60	11	281	45	5,046	145	38,714	245	50,052
Southern ,,	4	100	54	28,972	18	5,876	37	3,905	1	4	2	50	29	9,197	11	1,015	20	6,578	60	16,820	110	12,897	286	68,624
Total	11	1,060	95	45,098	27	7,517	74	5,482	3	11	2	50	63	16,302	14	1,265	34	14,999	111	32,566	303	67,344	626	159,128
Bombay — Northern Circle	8	331	43	9,396	9	332	37	1,913	10	1,135	...	...	8	667	20	1,550	5	2,224	33	4,441	338	479,032	473	495,662
Central ,,	32	980	42	6,778	17	3,175	169	12,355	...	...	...	...	...	...	11	457	47	2,946	58	3,403	46	30,776	361	57,467
Southern ,,	10	157	18	1,323	5	51	157	20,499	24	775	38	638	16	1,257	6	189	2	124	24	1,600	745	121,441	1,021	146,481
Sind ,,	...	...	5	259	1	60	7	229	1	40	...	...	3	116	2	30	1	...	6	110	56	3,541	76	4,269
Total	50	1,518	108	17,756	32	3,618	370	35,026	35	1,950	38	638	27	2,061	39	2,226	55	5,294	121	9,554	1,185	634,790	1,959	701,882
GRAND TOTAL	174	59,936	400	215,494	235	156,104	631	142,194	58	11,999	50	4,118	230	178,681	88	34,007	154	75,843	472	288,531	1,843	1,093,844	3,872	1,978,420

The above table shows that the total number of fires reported was 3,872, as compared with 4,393 in the previous year. The causes remained unknown in 1,843, or 47·60 per cent. of the total number of cases. Four and half per cent. of all fires were caused by burning fire-lines, over 10 per cent. entered the forests by crossing exterior fire-traces, and 12 per cent. were attributed to intentional firing.

III.—Regulation of Grazing.

The following table shows the areas closed against grazing to all animals and to browsers only :—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,831	5,443	21	3,675	1,942	11	4,033	...	...	13,589	7,385	32
N.-W. P. and Oudh	4,049	1,985	672	30	...	4	43	1	30	4,122	1,986	706
Punjab	2,891	401	575	2,473	48	71	3,837	13	255	9,201	463	901
Burma	17,151	14,778	45	...	...	...	72,263	...	...	89,417	14,778	45
Central Provinces	18,915	2,035	6,533	...	...	...	181	...	2	19,096	2,035	6,590
Assam	3,609	2,674	916	...	...	...	16,152	...	...	20,061	2,674	916
Coorg	223	156	...	661	...	...	...	...	...	899	156	...
Ajmer	139	...	139	...	...	...	10	...	10	149	...	149
Baluchistan	205	142	...	...	...	...	...	...	...	205	142	...
Andamans	156	...	...	...	...	...	1,795	...	...	1,951	...	...
Berar	4,176	418	1,133	...	...	...	...	...	...	4,176	418	1,133
Total Bengal Presidency	57,413	28,685	10,089	6,839	1,990	86	93,614	14	297	162,866	30,089	10,472
Madras "	15,862	1,232	553	...	...	...	3,787	14	133	19,619	1,396	696
Bombay "	13,695	2,186	4,790	1,250	...	226	...	...	...	14,915	2,186	5,016
Grand Total	86,970	31,653	15,442	6,089	1,990	312	102,401	28	430	197,460	33,671	16,184

The total area closed in the Bengal Presidency to all animals was 161 square miles in excess of that closed in the preceding year, but there was a decrease in all provinces except Burma, Assam, and the North-Western Provinces and Oudh, the most marked being in Berar, where, on account of the severe fodder-famine, only reserves retained for grass-cutting were kept closed. The area closed to browsers only was increased by 1,035 square miles, the principal change taking place in Berar. Concessions made on account of the prevailing drought led to a smaller area being closed in Madras to all animals, and the area closed to browsers only was reduced from 2,054 square miles in the previous year to 696 square miles; but it is stated that the question of making provision for goat-browsing still presented much difficulty. Similar concessions to those made in Madras were granted in Bombay, where the fodder-famine was severe, and it is said they were greatly abused by the villagers.

Owing to the inclusion of the unclassed forests of Burma in the total forest area of the Bengal Presidency, only 18 per cent. of the latter is shown as closed to all grazing, as compared with 34 per cent. in 1898-1899; the percentages in Madras and Bombay were 7 and 14·6 respectively.

There was a falling off of nearly 240,000 in the total number of animals grazing in the Bengal Presidency, at full and at privileged rates, but in Berar there was a marked increase. The number of animals which grazed free, otherwise than under settlement, increased by over one million head, as compared with the previous year, which was chiefly due to the the forests being thrown open to free grazing in the Southern Circle of the Central Provinces in consequence of the prolonged drought.

The total revenue realized in the Bengal Presidency from grazing fees was R21,000 less than in 1898-1899, the principal differences being a falling off of R66,500 and R9,400 in the Central Provinces and the Punjab, respectively, and an increase in Berar of R51,500. The estimated value of free grazing rose by nearly R1,93,000 to over 7¼ lakhs of rupees, and, as might be expected from what has already been said, the chief increase is shown in the Central Provinces. In Madras there was a considerable increase (R46,000), as compared with the

previous year, in the amount realized from fees, which is attributed to more careful supervision and better arrangements to meet local wants. In Bombay the famine accounts for a decrease of ₹58,600 in the receipts.

The amount of revenue realized in the various provinces from grazing fees and that estimated to have been foregone by reason of free grazing, are shown in the following statement :—

Province.	Circle.	Amount realized.	Amount foregone.
		₹	₹
Bengal	...	21,336	94,775
North-Western Provinces and Oudh	Central	23,968	37,957
	Oudh	33,359	23,919
	School	17,437	7,743
	TOTAL	74,764	69,619
Punjab	...	44,664*	2,55,004
Burma	Pegu	1,062	7,366
	Tenasserim	...	3,489
	Northern	30	1,753
	Southern	604	11,013
	TOTAL	1,696	23,621
Central Provinces	Northern	1,56,217	18,176
	Southern	1,08,670	1,11,657
	TOTAL	2,64,887	1,29,833
Assam	...	11,130	88,085
Coorg	...	2,066	656
Ajmer	...	4,952	5,258
Baluchistan	...	697	9,891
Andamans	...	...	...
Berar	...	2,29,034	49,592
Total Bengal Presidency	...	6,55,226	7,26,334
Madras Presidency	Northern	1,73,855	12,255
	Central	1,97,850	1,961
	Southern	83,718	760
	TOTAL	4,55,423	14,976
Bombay Presidency	Northern	2,845	2,05,311
	Central	1,16,385	†2,62,734
	Southern	79,317	3,71,479
	Sind	51,774	45,529
	TOTAL	2,50,321	†8,85,053
GRAND TOTAL	...	13,60,970	†16,26,363

* Exclusive of amount realized for grazing and grass-cutting leases.
† Exclusive of figures not given for the Ahmednagar, Poona, and Satara Divisions.

The following table shows, so far as the information is available, the incidence of grazing in open forests :—

Province.	Circle.	Grazed on payment. Number of animals. At full rates. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Grazed free. Number of animals. By right under Settlement. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	During pleasure of Government, or otherwise than under Settlement. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.
Bengal*	.....	3,789	13,483	4,164	...	25	8,872	189,567	17,822	...	544	48,941	152,035	49,041	...	...	62	228	110	...	7
N.-W. P. and Oudh	Central	20,820	63,815	2,953	780	396	6,292	25,938	70,819	...	1,533	16,361	90,579	9,563	...	1,330	119	1,007	...	...	163
	Oudh	17,744	57,135	1,583	...	52	23,282	92,042	9,266	...	...	1,725	24,683	...	...	...	1,226	3,873	524	...	55
	School	8,899	31,057	12,003	6,101	8,809	921	7,880	141	...	...	181	12,238	47,932	...	...	...	1,474	...	...	...
	Total	47,463	155,007	16,539	6,881	9,257	30,475	125,811	80,226	...	1,533	18,267	127,500	57,495	...	1,330	1,345	6,354	524	...	223
Punjab	.....	20,205	63,815	124,840	6,821	1,526	3,540	18,319	223,334	89	81	145,620	625,111	567,280	265	10,131	2,412	15,342	6,886	5,285	76
Burma†	Pegu	378	677	...	...	...	...	...	...	...	...	6,870	7,775	260	...	...	350	100	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	3,721	397	20	...	3	...	...	...	...	...
	Northern	40	...	...	...	2	...	...	...	...	...	2,683	2,592	...	...	...	1,109	2	...	...	15
	Southern	118	317	...	...	42	...	...	...	...	...	17,863	9,453	...	...	...	202	...	...	...	607
	Total	536	1,021	...	...	44	...	...	...	...	...	31,137	20,222	280	...	3	1,661	102	...	...	652
Central Provinces	Northern	131,715	502,076	30,460	61	734	...	...	...	...	...	...	...	...	...	...	10,767	85,565	1,962	...	...
	Southern	79,524	646,109	75,149	...	283	234	2,429	78	...	143	...	...	...	...	...	82,201	635,455	93,538	...	149
	Total	211,239	1,238,185	105,609	61	1,057	234	2,429	78	...	143	...	...	...	...	...	92,968	721,020	95,520	...	149
Assam	.....	18,554	5,257	11	...	58	...	...	...	...	...	...	...	...	...	...	56,187	246,557	11,733	...	1,070
Coorg	.....	626	3,127	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	...	...	...	...
Ajmer	.....	1,153	20,206	2,156	481	560	3,970	22,388	...	...	...	125	2,123	...	...	...	479	2,433	...	...	...
Baluchistan	.....	250	1,547	891	...	...	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Andamans	.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	.....	119,207	728,765	237,311	10	1,683	14,720	132,518	567	...	226	16	23,024	...	...	...	219	14,201	35	...	5
Total Bengal Presidency.		323,657	2,231,916	941,501	14,219	14,240	61,851	487,032	321,627	89	2,592	235,106	1,018,523	630,738	266	11,713	156,658	1,005,977	114,808	4,285	2,183
Madras Presidency	Northern	53,752	324,929	708,021	...	546	19,024	61,583	6,821	...	...	...	2,685	5,505	...	...	685	7,876	...	...	...
	Central	25,546	202,521	703,169	...	50	28	1,960	345	...	...	...	1,200	...	...	...	1,285	4,928	341	...	...
	Southern	21,294	289,052	65,816	...	4	...	5,171	...	...	...	233	...	...	...	...	25	215	...	...	...
	Total	120,672	1,222,975	1,477,079	...	600	19,052	68,014	6,996	...	...	233	4,585	5,505	...	...	2,695	13,019	341	...	...
Bombay Presidency	Northern	2,067	7,089	...	...	...	825	4,328	...	...	...	21,804	129,123	2,078	...	...	31,031	367,827	...	...	...
	Central	No details	given for Ah	medabad,	Poona and	Satara	Divisions					...	...	...	...	...	14,470	193,069	2,331	...	3,393
	Southern	3,937	7,645	31,269	...	3	109,384	304,671	57,650	...	1,113	...	...	...	...	...	11,615	34,171	...	...	25
	Sind	50,905	62,001	439,329	9,100	679	8,389	17,901	17,883	501	70	1,555	18,984	91	43	371	3,859	48,502	15,883	2,514	5,511
	Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	60,975	643,567	18,219	2,514	8,934

* No information available for the protected forests of Palamau and Angul and the unclassed forests of Chittagong.

† No statistics available for the unclassed forests.

IV.—Reproduction and Sylviculture.

There was a net increase during the year of 5,223 acres in the total area o regular plantations and taungyas, towards which Bombay and Burma mainly contributed. New plantations are shown to have increased by 4,025 acres in Bombay, but as of this area 3,226 acres are credited to the Panch Mahals Division and only cost R1,104, or less than R3 per acre, it is presumed that a mistake has been made in the acreage, particularly as no account of such extensive plantation work has been given in the body of the report of the Northern Circle. In Madras there was a net decrease of 535 acres in the total area of plantations and topes, and the cost of new work and the up-keep of existing plantations seem to have been high. The following table shows the changes which took place in the areas of plantations and the cost of the year's work in the several provinces :—

Province.	Area, in acres.												Cost of operations during the year.
	At commencement of the year.			Added during the year.			Excluded during the year.			Balance at the close of the year.			
	Regular plantations.	Taungyas.	Total.	Regular plantations.	Taungyas.	Total.	Regular plantations.	Taungyas.	Total.	Regular plantations.	Taungyas.	Total.	
													R
Bengal	2,872	...	2,872	...	...	...	...	...	...	2,872	...	2,872	4,068
North-Western Provinces and Oudh.	3,119	...	3,119	31	...	31	...	...	...	3,150	...	3,150	1,521
Punjab	696	...	696	60	...	60	60	...	60	696	...	696	507
Burma	3,668	45,276	48,944	...	1,330	1,330	...	...	...	3,668	46,606	50,274	55,402
Central Provinces	...	...	...	...	...	...	...	...	...	...	...	...	...
Assam	2,139*	85	2,224*	556	7	563	...	...	...	2,695	92	2,787	11,846.
Coorg	2,219	527	2,746	90	7	97	...	...	...	2,309	534	2,843	1,455
Ajmer	907	...	907	...	...	...	...	...	...	907	...	907	...
Baluchistan	30	...	30	8	...	8	...	...	...	38	...	38	19
Andamans	333	...	333	29	...	29	...	...	...	362	...	362	20
Berar	655	...	655	...	...	...	...	...	...	655	...	655	...
Total Bengal Presidency	16,638	45,888	62,526	769	1,344	2,113	60	...	60	17,347	47,232	64,579	74,838
Madras Presidency	38,512†	...	38,512	551	...	551	1,086	...	1,086	37,977	...	37,977‡	41,156
Bombay „	16,526	...	16,526	4,025	...	4,025	315	...	315	20,236	...	20,236	9,307
Grand Total	71,676	45,888	117,564	5,345	1,344	6,689	1,461	...	1,461	75,560	47,232	122,792	1,25,301

* Revised figures furnished by the Conservator.
† In the Report for 1898-99 the area at the close of that year was given as 30,678 acres.
‡ Includes 12,642 acres of topes.

The following sums were spent on cultural operations :—

	R		R
Bengal	8,646	Coorg	270
North-Western Provinces and Oudh.	2,208	Ajmer	578
Punjab	4,681	Baluchistan	...
Burma	3,935	Andamans	64
Central Provinces	124	Berar	996
Assam	49	Madras	5,785
		Bombay	7,830
Total	R35,166		

CHAPTER III.

WORKING AND OUTTURN.

The total outturn of all forests under the control of the Forest Department in timber and fuel, bamboos and minor produce, with the average outturn per square mile, is exhibited in the following table:—

PROVINCE.	RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.			AVERAGE OUTTURN PER SQUARE MILE.								
										RESERVED FORESTS.			PROTECTED FORESTS.			UNCLASSED FORESTS.		
	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	22,150,979	19,753,456	1,11,232	19,192,042	4,682,831	1,72,851	564,021	5,639,346	8,660	3,766	1,828	21	5,223	1,253	47	119	1,398	2
North-Western Provinces and Oudh	12,095,154	18,611,309	2,65,582	356,681	8,650	2,163	19,539	4,950	955	3,231	5,601	65	11,889	253	72	1·4	115	22
Punjab	6,227,931	822,692	2,28,500	16,917,771	29,650	2,52,205	11,256,542	183,376	81,851	2,139	281	72	6,840	8	97	2,933	47	29
Burma	8,112,783	11,944,000	52,981	...	...	...	31,942,398	41,114,000	2,92,691	500	733	3	...	...	...	135	619	1
Central Provinces	13,112,955	23,033,503	9,60,605	...	...	...	21,371	2,323	93	933	1,218	51	...	...	...	111	13	1
Assam	1,173,258	1,323,720	28,836	...	...	...	16,201,019	21,462,216	3,61,255	325	358	8	...	...	...	881	1,687	22
Coorg	223,776	131,080	4,067	123,090	19,675	13,191	...	...	...	961	553	17	196	15	20	...	...	...
Ajmer	255,585	7,461	18,516	125	...	23	2,110	...	1,052	1,339	54	132	...	...	...	211	...	105
Baluchistan	13,250	...	11,833	...	...	...	411,452	...	4	59	...	57	...	...	...	(a)	(a)	(a)
Andamans	1,482,253	153,838	323	...	...	...	649,702	521,116	4,716	9,510	985	2	...	...	...	362	290	3
Berar	1,140,118	2,664,062	4,09,979	...	...	...	...	...	...	273	633	119	...	...	...	...	...	...
Total-Bengal Presidency	72,133,179	99,453,919	21,70,855	36,594,315	4,682,206	4,30,539	60,700,655	71,927,453	7,51,803	3,256	1,210	31	5,351	685	63	616	760	8
Madras	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
†Bombay	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Area of unclassed forests not given

* The forests of the Madras Presidency yielded 17,235,811 cubic feet of timber and fuel, 27,899,725 bamboos, and R10,99,872 worth of minor produce. Dividing these figures by the 19,619 square miles of forests under the control of the Madras Forest Department, the average outturn per square mile was 885 cubic feet of timber and fuel, 1,416 bamboos, and R55 worth of minor produce.

† The forests of the Bombay Presidency yielded 57,239,618 cubic feet of timber and fuel, 5,294,905 bamboos, and R5,63,136 worth of minor produce. Dividing these figures by the 14,911 square miles of forests under the control of the Bombay Forest Department, the average outturn per square mile was 3,495 cubic feet of timber and fuel, 355 bamboos, and R38 worth of minor produce.

The amounts of forest produce removed by Government agency, contrasted with the amounts removed by purchasers, were as follow:—

PROVINCE.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	246,625	6,849,774	161,090	19,090,974	582,549	15,482,884	4,386	1,61,309
North-Western Provinces and Oudh	694,176	2,897,615	1,791,585	3,643,619	99,912	18,254,593	17,482	1,64,552
Punjab	1,038,852	972,630	4,279,715	962,440	912,870	114,148	25,892	1,69,028
Burma	3,124,366	22,918,991	10,246	11,865,518	6,000	52,934,000	506	3,13,360
Central Provinces	292,269	765,888	1,670,508	522,701	266,424	11,105,808	2,96,598	4,34,630
Assam	129,096	7,132,302	16,993	4,490,095	26,210	23,337,831	12,240	66,124
Coorg	48,076	176,290	7,500	119,200	600	139,330	26	16,576
Ajmer	176	1,080	...	208,505	...	7,461	11,571	1,489
Baluchistan	111	8,514	16,224	432,156	...	...	9	1,558
Andamans	290,399	34,284	1,305,630	2,975	32,130	52,000	3,522	479
Berar	...	167,911	...	461,974	...	761,615	2,498	3,67,110
Total Bengal Presidency	5,864,125	41,925,279	9,259,491	41,800,157	1,926,695	123,189,660	3,76,030	17,06,715
,, Madras ,,	567,324	2,202,058	3,210,334	11,079,730	384,925	27,256,496	49,366	10,07,383
,, Bombay ,,	949,498	3,547,040	7,424,043	27,262,264	374,291	4,365,958	56,009	4,33,576
GRAND TOTAL	7,380,947	46,674,377	19,893,918	80,142,151	2,685,914	153,812,114	4,80,403	31,47,974

These figures compare with those of the previous year as follow:—

Agency by which produce was removed.	TIMBER.		FUEL.		BAMBOOS.		MINOR PRODUCE (INCLUDING GRASS AND GRAZING).	
	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.
	C. ft.	C. ft	C. ft.	C. ft.	No.	No.	R	R
Government	7,380,947	8,802,075	19,893,918	19,842,032	2,685,911	1,741,670	4,80,404	2,09,223
Purchasers	46,674,377	47,860,521	80,142,151	89,689,685	153,812,114	163,058,170	31,47,974	28,95,048
TOTAL	54,055,324	56,662,596	100,036,069	109,531,717	156,498,025	164,799,840	36,28,378	31,04,271

The total amount of timber extracted from the forests departmentally and by purchasers was 54,055,324 cubic feet, or 2,607,272 cubic feet less than in the preceding year, the most noticeable falling off taking place in Burma, the Central Provinces, and Bombay. Of the above outturn, 26,043,347 cubic feet were extracted from the forests of Burma, and chiefly by purchasers.

There was a decrease of nearly 9½ millions of cubic feet in the outturn of fuel, which was due almost entirely to the quantity removed from purchasers in the Central Provinces, falling from 10,400,000 cubic feet to 523,000 cubic feet; but there was also a considerable falling off under this head in Assam and the North-Western Provinces and Oudh, and on the other hand an increase of over two million cubic feet in Bengal.

The number of bamboos extracted from the forests by Government agency was greater than in the previous year by 240,000, the increase taking place chiefly in Bengal, the Punjab and the Central Provinces, whilst there was a considerable decrease in Bombay. There was a falling off of 9¼ millions in the number of bamboos removed by purchasers, which was chiefly due to the famine in the Central Provinces, where the demand fell off by over 8½ millions of bamboos.

There was a large increase in the value of minor produce removed both by Government agency and by purchasers, as compared with the preceding year, which was due in the former case to the famine grass operations undertaken in the Central Provinces, and in the latter chiefly to the demand for grass and grazing caused by the famine in Berar.

The most important details of the working and outturn in the various provinces are as follow :—

Bengal.—The following statement gives details of the forest outturn of the year :—

Class of forest and agency by which produce was removed.	Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.
Reserved.	C. ft.	C. ft.	C. ft.	C. ft.	R
Government	186,799	155,740	342,539	17,148	2,682
Purchasers	5,669,564	15,194,638	20,864,202	9,769,908	1,24,875
Free-grantees	11,143	22,038	33,181	.....	1,363
Right-holders	.....	910,157	910,157	966,400	12,312
Total	5,867,506	16,282,573	22,150,079	10,753,456	1,41,232
Protected.					
Government	38,536	3,981	42,517	539,441	1,701
Purchasers	699,978	3,835,694	4,435,672	101,090	47,777
Free-grantees	1,624	729	2,353	2,300	2
Right-holders	230,665	14,380,835	14,611,500	4,000,000	1,23,374
Total	970,803	18,221,239	19,192,042	4,642,831	1,72,154
Unclassed.					
Government	21,200	1,360	22,659	25,960	3
Purchasers	480,232	60,642	540,874	5,611,886	8,657*
Free-grantees	491	.....	491	1,500	.....
Right-holders	.....	.....	.....	.....	.....
Total	502,013	62,011	564,024	5,639,346	8,660
GRAND TOTAL IN 1899-1900	7,340,322	34,565,823	41,906,145	21,035,633	3,22,746
DITTO IN 1898-99	6,420,306	32,248,935	38,669,241	20,744,794	2,90,016
Increase in 1899-1900	920,016	2,316,888	3,236,904	290,839	32,730

* Includes R2,108 collected from Hill Tippera (for two years).

The Local Government remarks—

"The gross outturn under all heads was much greater than in the previous year, and considering that the gross yield of the year 1898-99 itself had been considerably larger than in 1897-98, this result is very satisfactory. The Sundarbans Division gave the largest increase, the timber and fuel there exceeding those of the previous year by 693,867 cubic feet and 2,316,888 cubic feet, respectively, and the Departmental officers are reported to have shown much energy in exploiting the produce of this Division and taking advantage of a brisk demand. Singhbhum also showed a considerable improvement in its yield of timber, but fell off considerably in its fuel outturn, as also did Angul."

North-Western Provinces and Oudh.—The following statement shows, as far as possible, the gross output of the forests during the year, as compared with the previous year, but the figures are necessarily in part estimates :—

Circle.	1898-99.	1899-1900.	Difference.
		Timber.	
	C. ft.	C. ft.	C. ft.
Central	1,311,000	1,312,000	+1,000
Oudh	1,654,000	2,019,000	+365,000
School	1,121,000	1,067,000	—54,000
TOTAL	4,086,000	4,398,000	+312,000
		Firewood.	
	C. ft.	C. ft.	C. ft.
Central	3,685,000	3,442,000	—243,000
Oudh	5,175,000	3,941,000	—1,234,000
School	1,998,000	1,690,000	—308,000
TOTAL	10,858,000	9,073,000	—1,785,000
		Minor produce.	
	R	R	R
Central	1,74,458	2,07,576	+33,118
Oudh	91,378	92,526	+1,148
School	65,370	60,288	—5,082
TOTAL	3,31,206	3,60,390	+29,184

The differences in the outturn are thus accounted for in the Local Government's Resolution on the reports—

"In the Oudh Circle a considerable increase in the quantity of timber removed is more than counterbalanced by a large decrease in the exports of firewood, the net decrease being due apparently to failure on the part of the railway company to work up to its indents, especially in the Kheri forests. The decrease in the School Circle was apparently owing partly to the depressed state of the timber market in Jaunsar, partly to a smaller output in some of the divisions for sylvicultural reasons. In the Central Circle there was an enormous increase in the export of bamboos, owing to the addition of unsold blocks of the previous year to the available supply; the result was a glut of the markets and a fall in the price of bamboos."

The greater part of the outturn in the combined provinces is removed from the forests by purchasers, as will be seen from the following figures :—

	Removed by Government agency.	Removed by purchasers.
	C. ft.	C. ft.
Timber	693,176	3,033,335
Fuel	1,791,585	3,643,619

Punjab.—The following statement gives a summary of the gross outturn of the forests during the year under review, and compares it with the figures of the previous year:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C ft.	C. ft. solid.	No.	R	R
Government	1,038,852	4,279,715	912,870	36	25,856
Purchasers	972,630	962,440	114,148	1,45,705	13,323
Free-grantees	12,999	145,539	...	19,235	238
Right-holders	1,070,354	26,018,321	...	2,96,705	49,569
TOTAL	3,094,835	31,406,015	1,027,018	4,61,681	88,986
Total for 1898-99	3,237,892	32,059,366	813,936	4,51,416	66,703

The number of deodar trees extracted from the hill forests of Hazara, Chamba, Kulu and Bashahr by Government agency was 7,395, and that of pine and other trees 2,740, as compared with 10,109 and 1,184, respectively, in the preceding year.

The following statement shows a further increase in the exploitation of pine timber, though the quantity exported by river has fallen off:—

Year.	Removed by Government Agency.				Removed by Purchasers.			
	Deodar.	Pine.	Other timber.	Total.	Deodar.	Pine.	Other timber.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
1898-99	1,105,755	97,431	12,737	1,215,923	18,331	652,567	45,119	716,017
1899-1900	917,215	105,492	16,506	1,039,213	30,335	733,506	208,789	972,630

Burma.—The gross outturn of the forests is exhibited and compared with that of the preceding year in the following statement:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
	C. ft.	C. ft.	No.	R	R
Government	3,124,356	10,246	6,000	...	506
Purchasers	22,918,991	11,865,518	52,934,000	1,696	312,164
Free-grantees	376,073	1,000	2,000	6,735	...
Right-holders	350,524	1,038,476	3,116,000	16,886	7,688
TOTAL	26,769,944	12,915,240	56,058,000	25,217	320,358
Total for 1898-99	32,351,084	18,319,126	165,746,000	138,504	312,163

The reasons for the general falling off in the outturn are not very clearly explained in the reports, but in the Pegu Circle departmental operations were hampered by the mortality amongst elephants due to an outbreak of anthrax, and in the Southern Circle the restricted operations of the Bombay-Burma Trading Corporation in the Pynimana forests account for a considerable decrease. The working of the forests under leases and based on working-plans causes a considerable decrease in the output where forests have been over-exploited in the past, and in some districts the unclassd forests have been denuded of teak.

The number of teak trees girdled was 29,270, of which 12,702 were in the Pegu Circle and 8,406 in the Tenasserim Circle. The total outturn of teak timber was 274,814 tons, of which 164,847 tons were extracted by lessees in the Northern and Southern Circles, including 69,022 tons from the Pyinmana forests.

The outturn of cutch from the unclassed forests of the Pegu Circle again increased, and reached a total of 9,116 tons, as compared with 5,776 tons in 1898-99; but there was a considerable decrease in the Southern Circle due to reservation or overworking of the forests. The total outturn of india-rubber exceeded that of the previous year by 10,500 viss, the increase taking place in the Katha division, where favourable weather permitted access to the forests for a longer period than usual.

Central Provinces.—The following table compares the gross outturn of timber and fuel during the last two years:—

Agency.	1898-99.			1899-1900.		
	Timber.	Fuel.	Total.	Timber.	Fuel.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
	Southern Circle.					
By Government	372,581	1,139,908	1,512,439	216,496	488,551	705,047
„ Purchasers	566,014	6,778,843	7,344,857	346,416	3,333,295	3,679,711
„ Free-grantees	54,749	268,358	323,107	304,889	4,979,984	5,284,873
Total	993,294	8,187,109	9,180,403	897,801	8,771,830	9,669,631
	Northern Circle.					
By Government	116,493	1,008,566	1,125,059	45,773	1,211,957	1,257,730
„ Purchasers	704,722	3,601,135	4,305,857	419,472	1,889,406	2,308,878
„ Free-grantees	2,725	193,917	196,642	27,127	4,870,960	4,898,087
Total	823,940	4,803,618	5,627,558	492,372	7,972,323	8,464,695
Grand Total	1,817,234	12,990,727	14,807,961	1,390,173	16,744,153	18,134,326

The Chief Commissioner remarks as follows in his Resolution on the year's work:—

"In spite of the unfavourable conditions of the year, the amount of timber and fuel removed by departmental agency in the Northern Circle shows an increase, but this is mainly owing to the employment of famine labour in Nimar for the exploitation of fuel. With the large increase of free grants to the poorer classes as an important measure of famine relief, a heavy decrease in the quantities of fuel removed by purchasers was only to be expected, and the above statement gives ample evidence of the extent to which the Government forests have aided in the relief of distress. Another important feature of the year in connection with famine relief in both Circles was the extensive operations for the supply of fodder departmentally, principally to the Bombay Presidency, and although these operations in the Northern Circle resulted in a loss of Rs8,000, the value of the relief given is a full compensation."

Owing to agricultural distress, there was a great falling off in the number of bamboos removed by purchasers. There was a still greater improvement in the revenue derived from *harra*, which was due to the improved system of collection.

Assam.—The outturn of timber and fuel during the year under review is summarized and compared by the Conservator with that of the previous year in the following table:—

Class of forests and agency of exploitation.	1898-99.						1899-1900.					
	Timber.		Fuel.		Total.		Timber.		Fuel.		Total.	
	Traders and consumers.	Waste land leases.	Traders and consumers.	Waste land leases.	Traders and consumers.	Waste land leases.	Traders and consumers.	Waste land leases.	Traders and consumers.	Waste land leases.	Traders and consumers.	Waste land leases.
1	2	3	4	5	6	7	8	9	10	11	12	13
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
From Reserved forests	937,859	...	263,718	...	1,201,577	...	946,410	...	226,828	...	1,173,238	...
„ Unclassed „	7,520,671	415,736	10,910,499	325,134	18,431,170	740,870	6,803,821	245,397	8,892,970	259,031	15,696,791	504,428
Total	8,458,530	415,736	11,174,217	325,134	19,632,747	740,870	7,750,061	245,397	9,119,798	259,031	16,869,859	504,428
					20,373,617						17,374,287	
By Government	121,241	...	21,410	....	142,651	...	129,096	...	16,993	...	146,089	...
„ Purchasers	7,325,460	...	5,981,021	...	13,309,481	...	6,886,905	...	4,231,064	...	11,117,969	...
„ Waste land lessees	...	415,736	...	325,134	...	740,870	...	245,397	...	259,031	...	504,428
„ Right-holders	2,050	...	...	...	2,050	...	...	...	...	...	...	...
„ Free-grantees	1,009,779	...	5,163,786	...	6,173,565	...	734,060	...	4,871,741	...	5,605,801	...
Total	8,458,530	415,736	11,174,217	325,134	19,632,747	740,870	7,750,061	245,397	9,119,798	259,031	16,869,859	504,428
	8,874,266		11,499,351		20,373,617		7,995,458		9,378,829		17,374,287	
	20,373,617						17,374,287					

The quantities shown above as removed by purchasers are stated to be untrustworthy owing to an incorrect manner of calculating the produce removed under *gurkati* licenses from the Garo Hills, and the figures giving the outturn removed by free-grantees are little better than guess work. After eliminating the doubtful figures relating to *gurkati* and free permits, the total outturn of the forests shows a decrease of 426,500 cubic feet, as compared with that of 1898-99, of which 236,442 cubic feet fall under timber removed by waste-land grantees. There was a slight increase in the amount of timber and fuel extracted departmentally, and in Goalpara there was an increased outturn of 15,752 cubic feet, due to sleeper operations.

Compared with the previous year, the outturn of tea boxes from saw-mills worked under the box royalty system declined from 458,272 to 410,619 boxes. The local output in this case has to compete with the imported article, which it appears to be in the interests of the Calcutta agents to supply.

The amount of home rubber produced was 742 maunds, including 56 maunds from the Chardwar plantation, while that of foreign rubber was 4,816 maunds. The opening of the Manipur forests, which until quite recently had been closed to the export of all produce, accounts for a considerable increase in the outturn of rubber in Cachar; and in Lakhimpur the increase of the outturn of foreign rubber from 1,810 maunds in 1898-99 to 2,841 maunds in the year under review is supposed to be due to the importation of stocks which had accumulated in the Mishmi country during recent disturbances.

The outturn from the Manipur forests increased under all the principal heads, especially those of timber and bamboos, and the total revenue rose from R14,871 in the previous year to R41,998, 75 per cent. of which was paid to the State in accordance with the arrangement sanctioned by the Government of India.

Coorg.—The following statement summarises the total outturn of major and minor produce and compares it with that of the previous year:—

Agency of work.	Timber and Poles, in c. ft.		Sandalwood, in tons.		Fuel, in c. ft.		Bamboos, in number.		Grass and grazing, value.		Other forest produce, including cardamoms.	
	1898-99.	1899-00.	1898-99.	1899-00.	1898-99.	1899-00.	1898-99.	1899-00.	1898-99.	1899-00.	1898-99.	1899-00.
									R	R	R	R
By Government	35,600	29,326	137	175	12,141	7,500	4,100	...	79	...	199	56
By Purchasers	3,62,410	1,76,290	...	...	23,370	1,13,200	2,39,610	1,39,330	1,734	* 2,175	16,629	14,401
Free-grantees	4,700	5,800	...	...	..	...	9,326	4,825	...	...	...	...
By Right-holders	..	...	...	...	...	...	...	...	1,675	656	...	...

* Includes sale of grass R109.

In reviewing the report the Government of India remarked—

"The gross outturn of timber and fuel was 356,866 cubic feet, as compared with 500,724 cubic feet in the preceding year; the decrease of 142,858 cubic feet was due to less timber having been sold on waste lands given up for cultivation than in 1898-99, when sales of this description were abnormally great. There was an increase in the quantity of timber removed and sold by departmental agency, and the amount of felled timber lying in the forests was reduced to 123,916 cubic feet; but the slow rate at which the latter is being disposed of must lead to heavy loss from deterioration. Fewer bamboos were extracted from the forests both by purchasers and by Government agency. The quantity of sandalwood sold was the same (172 tons) as in the previous year, but the prices obtained were much better, the average price realized per ton being R303 as against R351."

Ajmer.—In the following statement the total outturn of the year is compared with that of the previous year:—

Agency.	Timber.		Fuel.		Other produce, value.	
	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.
	C. ft.	C. ft.	C. ft.	C. ft.	R	R
By Government	250	175	870	...	3,582	1,571
„ Purchasers	1,781	1,080	273,253	208,565	4,509	1,658
„ Right-holders	13,836	...	560	...	30,661	4,157
„ Free-grantees	...	70	3,050	48,290	1,457	2,279
Total	15,867	1,325	277,733	256,795	40,210	19,665

The famine caused a falling off in the demand for fuel, and seriously affected the receipts from grass and grazing. The stock of famine insurance grass was exhausted.

Baluchistan.—The following statement shows the outturn of timber and firewood as compared with that of the two previous years :—

Class of Forest.	Timber.			Firewood.		
	1897-98.	1898-99.	1899-1900.	1897-98.	1898-99.	1899-1900.
	C. ft.	C. ft.	C. ft.	C. ft.	C ft.	C. ft.
Reserved . . .	7,046	2,374	2,031	10,061	14,765	16,228
Unclassed . . .	5,018	2,896	10,678	3,55,412	4,50,471	4,33,784
Total .	12,064	5,270	12,705	3,65,473	4,65,236	4,50,012

The Agent to the Governor-General remarks :—

"The drain on the Baluchistan forests for firewood continues to present a very serious problem. The reports for the past few years clearly show that natural or artificial reproduction cannot be reckoned upon to meet the large consumption, and this seems to be chiefly due to the fact that the only trees which thrive naturally in the inhospitable climate of Baluchistan are of extremely slow growth. The drain is especially marked in the unclassed forests, and, as shown by the Report under review, the local supply at the present rate of consumption can only be expected to last for a few years. The best method to prevent its total exhaustion appears to be to restrict the local cuttings and import firewood from the Sind forests, from which, according to the Deputy Conservator's estimate, it can be landed in Quetta at an accessible rate."

The outturn of minor produce was valued at R11,837, of which R9,891 was on account of the estimated value of free grazing enjoyed by right-holders.

Andamans.—The outturn, compared with that of the previous year, was as follows :—

Timber—

	1898-99. Cubic feet.	1899-1900. Cubic feet.
Removed by the Forest Department	243,256	290,389
,, ,, Purchasers	24,394	34,284
Total .	267,649	324,673

Poles, Bullocs, etc.—

Removed by District Officers	44,693	25,576
,, on free grants	37,500	37,500
Total .	82,193	63,076

Fuel—

Removed by the Forest Department	1,167,030	1,305,630
,, ,, Purchasers	2,534	2,975
,, ,, District Officers	135,982	111,611
,, on free grants	330,000	330,000
Total .	1,635,546	1,750,216

Nine hundred and ninety-six padouk trees were felled, yielding 1,542 logs, as compared with 1,256 trees and 1,897 logs in the previous year. During the year 474 tons of choice padouk and 116 tons of koko and black chuglam were shipped to London, where the sales consisted of 457 tons of padouk and 33 tons of other timbers. Local sales of timber amounted to 460 tons. The Forest Department supplied 25,484 tons of firewood and 57,731 lbs. of gurjan oil to the Settlement.

Berar.—The sales of the two years compare as follows:—

		1898-99.	1899-1900.	1899-1900.	
				Increase.	Decrease.
Timber	Cubic feet.	474,461	167,911	...	306,550
Fuel	„ „	1,442,364	461,974	...	980,390
Bamboos	No. in hundreds.	27,177	7,619	...	19,558
Grass	Value R	36,726	1,27,034	90,308	...
Grazing	„ „	1,67,561	2,29,934	61,473	...
Miscellaneous II-e.—Fruits, dye-stuff, lac		23,068	11,042	...	12,026
Miscellaneous III.—Waif wood		131	209	78	...
Miscellaneous V.—Other sources		6,654	4,656	...	1,998
Gross revenue per square mile		104	102	...	2
Net revenue per square mile		47	47	...	...

The Conservator remarks—

"Drought and famine, which still prevailed at the close of the year, account for the abnormal figures, and it is useless making surmises as to the period which will be required for a recovery as to the demand for timber, etc."

Madras.—The total outturn of timber and other produce is compared with that of the previous year in the following statement:—

Agency.	Timber, including sandalwood.		Fuel.		Bamboos.		Minor produce. *	
	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.	1898-99.	1899-1900.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
By Government	662,916	567,324	2,389,534	3,210,384	397,177	384,925	41,649	49,365
By Purchasers (including confiscations)	1,958,096	2,274,117	10,229,486	11,115,841	25,535,800	27,806,629	9,02,537	10,07,674
By Free-grantees	54,058	58,380	3,183	9,188	126,970	166,515	2,331	3,063
By Right-holders	1,423	1,773	257,523	257,574	21,370	21,289	40,304	40,961
Total	2,676,493	2,901,594	13,379,726	14,592,987	26,031,017	27,878,753	9,86,824	11,00,063
Increase in 1899-1900 as compared with 1898-99	...	+225,101	...	+1,213,261	...	+1,797,741	...	+1,13,239
Percentage of increase over the previous year	...	+8·4	...	+9·0	...	+6·9	...	+11·5

* Includes value of grass cut and grazing fees.

The Madras Government make the following remarks—

"The total amount of forest produce extracted was greater under all heads than in the previous year. Departmental removals exceeded sales except under the head of *bamboos*. The explanation as regards *timber* appears to lie in the difficulty experienced in making satisfactory arrangements for the supply of sleepers to Railway Companies; and as regards *fuel*, the accumulation of stock was due partly to the unavoidable clearing of certain areas and partly to fellings in accordance with working-plans which will no doubt be in time adapted to actual requirements. Removals by purchasers show a large increase under all heads. Making allowance for the adjustments in the accounts which made the figures for 1898-99 in North Arcot appear less than they really were, the increase generally appears largely due to more careful supervision and better arrangements made to meet local wants. This explanation particularly applies to the increase of over half a lakh of rupees under *grazing* which was realized notwithstanding the concessions granted on account of the drought."

Bombay.—The outturn of timber, fuel and other produce in the various Circles is shown by the Bombay Government in the following table :—

Circle.	Agency by which material was removed.	Material removed.					Average outturn per square mile of all forests.		
		Timber.	Fuel.	Total wood	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
		C. ft.	C ft.	C. ft.	No.	R	C. ft.	No.	R
Northern Circle.	Government	102,477	155,656	258,133	*7,095	576	...	...	...
	Purchasers	1,438,065	5,205,955	6,644,020	‡1,615,302	6,020	..	...	...
	Free-grantees	91,367	123,442	214,809	58,605	275	...	...	...
	Right and privilege-holders	...	1,571,626	1,571,626	†252,187	5,481	...	...	...
	Total	1,631,909	7,056,679	8,688,588	§1,933,189	12,352	13,278	1809	16
Central Circle	Government	112,187	2,956,545	3,068,732	287,551	6,153	...	...	...
	Purchasers	144,503‡	700,593	845,096	605,516	22,451	...	...	...
	Free-grantees	22,202	467,349	489,551	100	5,044	...	...	...
	Right and privilege-holders	...	52,005	52,005	...	13,009	...	...	...
	Total	278,892	4,176,492	4,455,384	873,167	46,657	712	139	7
Southern Circle.	Government	732,430	4,294,841	5,027,271	99,615	51,797	...	....	...
	Purchasers	657,796	2,927,218	3,585,014	2,745,140	19,531	...	...	...
	Free-grantees	53,891	1,681	55,568	45,052	534	...	...	...
	Right and privilege-holders	32,200	10,573,503	10,606,708	**198,712	15,141	...	...	...
	Total	1,477,316	17,797,251	19,274,561	**3,088,519	87,663	3,639	583	16
Sind Circle	Government	2,401	17,091	19,405	...	273	...	...	...
	Purchasers	306,676	18,428,498	18,735,174	...	36,644	...	...	...
	Free-grantees	12,613	101	12,714	...	221	...	..	...
	Right and privilege-holders	...	103,761	103,761	...	...	...	...	...
	Total	321,693	18,549,361	18,871,054	...	37,238	17,753	...	35
All Circles combined	Government	949,198	7,424,043	8,373,511	374,291	58,799	...	...	...
	Purchasers	2,547,040	27,262,264	29,809,304	4,365,958	84,896	...	...	...
	Free-grantees	180,066	592,576	772,642	103,757	6,071	...	...	...
	Right and privilege-holders	33,200	12,300,900	12,334,100	450,899	33,631	...	...	...
	Grand total for 1899-1900	3,709,804	47,574,783	51,289,587	5,294,905	1,83,400	13,595	††371	††13
	Grand total for 1898-99	3,915,673	49,993,719	53,908,823	7,733,390	3,63,541	13,778	††542	††21
	Decrease in 1899-1900	205,269	2,413,967	2,619,236	2,438,485	1,80,141	183	171	8

* Besides 60 head-loads.
‡ Besides 200 cart-loads.
§ These averages are per square mile of the total forest area of the Northern Circle, excluding the leased forests of the Dangs.
** Besides 481 cart-loads.
†† These averages are per square mile of the total forest areas of all Circles combined, excluding the leased forests of the Dangs.
† Besides 3,443 cart-loads and 2,479 head-loads.
‡ Besides 3,643 cart-loads and 2,519 head-loads.

In addition to the minor produce, the value of which is entered in the above statement, the following revenue was realized on account of grazing fees and the sale of grass :—Northern Circle, R19,837 ; Central Circle, R2,07,373 ; Southern Circle, R70,291 ; Sind Circle, R52,960 total R3,50,461, as compared with R3,98,384 in 1898-99 and an average of R5,58,727 for the five years ending 1897-98.

It was only in the Southern Circle that the outturn of timber and fuel removed by Government agency and purchasers showed an improvement ; there was a considerable falling-off in the Central Circle, and in the Sind Circle there was a decrease of over one million cubic feet in the amount of fuel removed by purchasers. The total amount of wood removed by right-holders was 7¼ million cubic feet in excess of that in the previous year.

CHAPTER IV.

I.—Financial Results.

The gross revenue realized was ₹1,90,10,000, as against an average revenue of ₹1,77,16,000 during the previous five years, and the net revenue was ₹79,85,000 as compared with a quinquennial average of ₹79,19,000. In most provinces the financial results compared favourably with the averages for the previous five years, but in Bombay and the Central Provinces plague and famine affected the revenues very seriously, and the extensive famine fodder operations which were undertaken in these two provinces account in a great measure for a large increase in the total expenditure.

The revenue and expenditure for the year under review, compared with the results of the previous two years and of the quinquennial periods since 1872-73, are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to Gross Revenue.
	₹	₹	Per cent.
1872-73 to 1876-77	65,38,373	44,09,179	67
1877-78 to 1881-82	73,80,431	49,42,512	67
1882-83 to 1886-87	1,06,78,807	68,31,284	64
1887-88 to 1891-92	1,42,46,891	80,69,590	56
1892-93 to 1896-97	1,71,60,426	95,99,796	55
1897-98	1,77,95,490	1,01,95,730	57
1898-99	1,90,38,520	1,00,33,920	53
1899-1900	1,90,09,610	1,10,24,680	58

As compared with the previous year, there was a decrease of three lakhs of rupees in the gross receipts from the forests of Burma, which was due to smaller extractions by lessees in the Southern Circle; but the forests of this province nevertheless yielded a gross revenue of 78 lakhs out of the total of 143 lakhs produced by the forests in the Bengal Presidency, and a much higher proportion of surplus than in any other province.

The following table compares the revenue and surplus in each province with the average realized during the previous five years, and it may be explained that the great drop in the net revenue per square mile of land in the Bengal Presidency under the control of the Department, when compared with that of the previous year, is due to the inclusion for the first time of the unclassed forests in Burma :—

Province.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1899-1900.	Average for preceding 5 years.	1899-1900.	Average for preceding 5 years.	1899-1900.	Average for preceding 5 years.		
	₹	₹	₹	₹	₹	₹	Per cent.	₹
Imperial	6,090	9,683	...	...	90,460	73,128	...	...
Bengal	11,38,910	10,49,364	5,93,700	5,10,652	...	...	52·1	44
North-Western Provinces and Oudh.	16,14,749	15,31,824	6,72,360	5,96,746	...	...	41·6	163
Punjab	14,00,770	11,39,510	1,89,310	3,89,286	...	...	13·5	21
Burma	78,12,050	66,15,542	53,64,610	44,94,900	...	...	68·7	60
Central Provinces	8,19,260	9,10,848	...	...	2,22,180	23,584	...	...
Assam	5,68,100	4,15,912	2,10,960	1,29,042	...	...	37·1	10
Coorg	1,62,410	1,33,456	88,190	51,310	...	...	54·3	57
Ajmer	10,270	14,162	...	...	5,080	2,560	...	...
Baluchistan	17,060	15,330	...	...	11,620	18,178	...	...
Andamans	2,60,600	2,54,438	1,19,660	69,010	...	...	45·9	61
Forest School	3,210	3,040	...	...	70,340	62,080	...	...
Forest Surveys (Imperial)	420	300	...	...	33,560	31,636	...	...
Total	1,38,13,890	1,20,93,414	68,05,550	60,29,760	...	...	49·3	43
Berar	4,78,230	4,65,150	2,43,850	2,2 ,922	...	...	50·9	58
Total Bengal Presidency	1,42,92,120	1,25,58,564	70,49,400	62,50,702	...	...	49·3	43
Madras	23,02,290	21,10,983	6,48,760	6,04,233	...	...	28·2	33
Bombay	24,15,200	30,46,244	2,86,770	10,64,662	...	...	11·8	19
GRAND TOTAL	1,90,09,610	1,77,15,796	79,84,930	79,19,596	...	...	42·0	40

The following table presents an analysis of the receipts and expenditure of the year :—

				Amount.	
				R	
Gross Receipts	(a) Wood			1,43,98,580	
	(b) Minor forest produce			16,34,510	
	(c) Forest stamps and commutation fees for forest produce			6,12,600	
	(d) Grazing			14,69,500	
	(e) Revenue from forests not managed by Government			4,32,780	
	(f) Miscellaneous			4,61,640	
	TOTAL REVENUE			1,90,09,610	
				Amount.	Proportion of Expenditure to gross Revenue.
				R	Per cent.
Expenditure	A Recurring	(a) Administration.	(i) Superior Staff	22,21,380	11·7
			(ii) Exchange compensation allowance.	91,280	0·5
			(iii) Subordinate Staff (including Rangers, Deputy Rangers, Foresters and Guards).	17,99,800	9·5
			(iv) Office Establishments (including Contingencies).	8,86,020	4·7
		(b) Working	(1) Extraction	33,75,930	17·8
			(2) Roads and Buildings	4,26,750	2·2
			(3) Fire-protection	3,33,700	1·7
			(4) Cultural operations	3,19,220	1·7
			(5) Live-stock, stores and plant.	3,43,020	1·8
			(6) Working-plans *	69,790	0·4
			(7) Rent for leased forests	3,36,600	1·7
			(8) Miscellaneous	1,24,250	0·6
		(c) Expenditure on realization of Revenue from forests not managed by Government.		42,130	0·2
		(d) Forest Science and Education (comprising all "A" and "B" charges of Forest School).		73,550	0·4
			TOTAL	1,04,43,420	54·9
	B Extraordinary	(e) Forest Settlement		41,290	0·2
		(f) Forest Surveys		4,06,010	2·2
		(g) Forest Demarcation		1,33,960	0·7
			TOTAL	5,81,260	3·1
			GRAND TOTAL EXPENDITURE	1,10,24,680	58·0
			Net Revenue	79,84,930	42·0

* Exclusive of "B" charges.

The table below shows the estimated value of forest produce for which no credit has been taken financially, and which was given away free or at reduced rates to right-holders and under free-grants :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and grazing.	Total.
	R	R	R	R	R	R
Bengal	13,923	1,06,863	9,709	31,946	92,718	2,55,164
North-Western Provinces and Oudh.	64,873	58,491	938	10,564	75,433	2,09,999
Punjab	43,668	3,36,352	...	49,807	3,15,940	7,45,767
Burma	89,257	6,852	7,381	5,891	23,621	1,33,002
Central Provinces	19,900	53,900	51,400	64,600	1,82,000	3,71,800
Assam	54,383	76,121	7,575	2,27 211	88,085	4,53,375
Coorg	542	...	24	...	656	1,222
Ajmer	17	928	...	103	10,454	11,502
Baluchistan	543	30	...	379	9,891	10,843
Andamans	18,923	16,718	295	788	...	36,724
Berar	22,252	12,086	29,764	18,052	75,817	1,57,941
Total Bengal Presidency	3,28,786	6,68,041	1,07,056	3,99 341	8,74,615	23,87,839
„ Madras „	7,658	5,277	1,063	40,466	2,658	57,122
„ Bombay „	20,598	1,25,256	2,518	21,215	44,958	2,14,545
Grand Total	3,57,042	7,98,574	1,10,637	4,61,022	9,22,231	26,59,506

II.—Value of the Forests in time of Famine.

In the Central Provinces the State forests were thrown open freely to the people during the severe famine of 1899-1900, so that they were able to remove all edible products free of charge, and all other minor products except *harra* and *lac*. The gregarious seeding of bamboos in some districts afforded an excellent food-supply, which was the means of enabling a great number of people to do without relief for two or three months. The report on the famine in the Central Provinces in 1899-1900 bears ample testimony to the great value of the forests to the people in the time of scarcity, and it is stated therein that the opening of the forests to the people was one of the most useful measures of relief in the province. The following extract from the report is interesting, as giving some idea of the money-value of the concessions :—

"The money-value to the Forest Department of these concessions by no means represents their real value to the people, but the amount even of this is substantial. For the whole famine period (September 1899 to October 1900) it is estimated by the Forest Department at the following figure :—

	Value of free grants or produce given at reduced rates. R
Timber	3,627
Fuel	62,929
Bamboos	49,201
Grazing and grass	1,96,562
Edible produce	71,059
Total	3,83,378

" In addition to this, the value of forest produce given to relief camps and kitchens aggregated no less than R54,897, while forest revenue to the amounts of R54,937 and R32,154 was suspended and remitted respectively.

" The total loss to the Department has thus amounted to more than R5,25,000, not counting the heavy cost of grass-cutting operations. Advances were also made by the Department to cultivators in forest villages. The forests have no doubt suffered some loss from this free access of the people to them, but they are intended for the general good, and the damage done has been incommensurate with the benefit to the people and the help given to famine administration."

CHAPTER V.

I.—Establishment.

During the year under review, four officers of the Imperial Service retired, one died and one resigned, and there were three deaths and one resignation amongst members of the Provincial Service. Fifteen out of the 19 permanent Conservators remained on duty throughout the year. Two Deputy Conservators and one Assistant Conservator were added to the cadre of the Forest Department in the province of Bengal, thus raising the total sanctioned strength of Deputy and Assistant Conservators to 189 officers for all India, out of which 166 remained on duty throughout the year. Six officers of the Imperial Service and eight of the Provincial Service were on foreign service for the whole or part of the year. Towards the close of the year Mr. H. C. Hill, Conservator, was deputed to the Straits Settlements and the Federated Malay States to report on the system of forest administration there, and to render advice with regard to future management. The services of Mr. Mayes, Assistant Conservator, were lent during part of the year to the Kashmir Durbar in order that he might draw up a working-plan for the deodar forests in the Bhadarwah *jagir*. Mr. McDonell remained in charge of the Kashmir forests, Mr. Pigot in Mysore, and Messrs. Slade and Tottenham in Siam, throughout the year. Of the 43 appointments which are eventually to be transferred from the Imperial to the Provincial Service, 26 had actually been transferred at the close of the year.

The members of the Provincial Service were generally reported to have done good work. The conduct of the protective staff in Madras is stated to have been very unsatisfactory as usual, but in most provinces there appeared to be a tendency to improvement, and there is no doubt that the conduct of the subordinate establishments depends greatly upon the amount of supervision exercised by controlling officers.

II.—Experiments.

Exotics.—The experimental sowings of pine seeds from Germany and Cape Colony, made during the previous year in the hills of the Punjab and the North-Western Provinces, as well as at Quetta, were not successful, and the seedlings of *Pinus Pinaster* were the only ones which appeared to be doing well.

In the Punjab, *Robinia pseudo-acacia* continues to thrive generally in the Simla District, but the extensive plantings of this species in the Simla catchment area have not been so successful as elsewhere. The *Robinia* is also reported to be doing well at Dharmsala and Nurpur in the Kangra Division, but in other parts of the Punjab the results of experimental sowings have been on the whole poor.

The Spanish chestnut trees in the hill divisions of the Punjab and the North-Western Provinces continued to flourish, and five acres were planted up in the Naini Tal Division. New nurseries sown in Bashahr with local seed, and in Simla with seed obtained from Kulu, were unsuccessful.

Rubber.—In Assam the Charduar rubber plantation was extended by 556 acres to a total area of 2,304 acres. Tapping operations were continued in compartments Nos. 5 to 8, and for a second year in succession in compartment No. 4 and part of No. 3, and were directed mainly with the view of ascertaining the best method of tapping and the frequency with which it should be con-

ducted on the same trees. Although the experiments were too incomplete to allow of any definite conclusion being arrived at regarding the latter point, it appeared fairly certain that the method of tapping with the gouge and mallet is the best, and that it is most profitable to make the cuts horizontally. A total area of 474 acres, containing 6,810 trees, was operated upon and yielded 4,502 lbs. of clean rubber, of which 4,451 lbs. were sent to London, where the price realized was 3*s.* 7*d.* per pound. The sale agents reported that the above consignment was the finest rubber ever sent from Assam, and that if it could be delivered in larger quantities and with regularity, it would realize a price still nearer to the rate paid for fine Para.

In Burma 885 *Hevea* plants were put out in the Mergui plantation, and nurseries to hold 20,000 plants were prepared. In the Pegu Circle experiments were made in tapping the creepers *Chavannesia esculenta* and *Willoughbeia edulis*; samples of the latex of these species were sent for examination to the Reporter on Economic Products, and a sample of the former species to the Imperial Institute, London, from the Tenasserim Circle. Experiments made with seedlings of *Ficus elastica* in the Katha Division gave but poor results, owing apparently to insufficient protection.

In Bengal some sowings of seed of *Ficus elastica* were unsuccessful, but cuttings of this species are doing well at Tashiding. Experimental sowing of *Hevea brasiliensis* (Para rubber) were partially successful at Kurseong.

Lac.—Owing to another unfavourable year, nothing further was done to cultivate lac in the Central Provinces, and no extension of the cultivation took place in Berar, but in the latter province the collection of lac amounted to 171 maunds, chiefly in the Ellichpur District. In the Saharanpur Division, North-Western Provinces, the experimental cultivation of lac was continued at Ranipur, where 200 more dhák (*Butea frondosa*) trees were stocked, and 90 lbs. of lac were collected from the 320 trees previously stocked.

Cæsalpinia coriaria (Divi-divi).—The introduction of this species into the Santhal Parganas, Bengal, is said to have been accomplished. It is reported to be thriving in South Arcot, and experiments were made with it in the Ganjam District of the Madras Presidency. A nursery was made for it at Tharrawaddy in Burma.

Resin.—The tapping of *Pinus longifolia* trees was carried out on a larger scale than heretofore. In the North-Western Provinces, 8,957 trees were tapped in the Government forests in Jaunsar, which yielded 1,154 maunds of crude resin, and operations were commenced, under an agreement with the Raja, in the leased forests of Tehri-Garhwal. The outturn of the above forests is worked up at Dehra Dun, where during the year 1,445 maunds of resin were distilled, which yielded 1,051 maunds of colophony and 2,252 gallons of turpentine. The net profit on the year's working was less than usual, owing to the heavy initial outlay on new plant required for working up the outturn of the leased forests. In the Naini Tal Division, Central Circle, 20,949 trees were tapped and yielded 1,174 maunds of crude resin; the outturn of the distillery during the year was 1,198 gallons of turpentine and 544 maunds of colophony. Improvements having been made in the preparation of the turpentine, no difficulty is experienced in disposing of all that is made.

In the Kangra Division, Punjab, it is not known how many trees were tapped for resin, but 60,000 blazes were worked during the year, which gave an outturn of 3,108 maunds of crude resin. By the close of the year the requisite

buildings for a distillery had been constructed, and the special plant supplied by a Bombay firm placed in position. It is stated that the distillery can dispose of 31 maunds of crude resin a day, and that the average outturn from 100 maunds is 170 gallons of turpentine and 70 maunds of colophony.

III.—Exports of Forest Produce.

The following table gives the amounts and value of various forest-products exported from India during the financial year 1899-1900, as given in the Foreign Trade Report compiled in the Statistical Department:—

Articles of Forest-produce.	Quantity, in tons of 20 cwts.; in the case of Teak, cubic tons.		Valuation at port of shipment in 1899-1900.	
	Average of five years 1894-95 to 1898-99.	In 1899-1900.	Total.	Per ton.
			R	R
Caoutchouc	344	408	15,80,729	3,874
Lac—				
Button	1,535	2,016	19,82,449	983
Shell	8,055	9,762	92,65,600	949
Stick and other kinds	120	145	1,18,548	817
Lac-dye	4	1 cwt.	24	24 per cwt.
Sandal, ebony and other ornamental woods	Information	not available.	9,99,224	...
Cutch and gambier	6,197	6,391	24,70,629	386
Myrabolams	46,545	50,914	35,31,701	69
Teak	68,695	77,822	91,18,269	117
Cardamoms	65	85	3,27,750	3,856
Total in 1899-1900	...	...	2,93,94,923	...
„ „ 1898-1899	...	...	2,49,39,225	...
Increase in 1899-1900	...	...	44,55,698	...

The total value of the exports was considerably higher than in the two previous years. The quantities of caoutchouc, lac, cutch and myrabolams exported were considerably greater than in the preceding year, but there was generally a fall in the value per ton of these commodities, as well as in that of cardamoms. The amount of teak exported was much the same as in 1898-99, but the value declined from R123 to R117 per ton.

IV.—Technical Education and Recruitment.

The Imperial Service was recruited by six young officers who, having completed their course of training at Cooper's Hill College, came out to India towards the end of 1899 and were posted—two to Burma, two to Madras, one to the North-Western Provinces and Oudh, and one to the Central Provinces. No change was made in the course of training at Cooper's Hill College for the Imperial Service, which remained under the superintendence of Dr. W. Schlich, C.I.E., and Mr. W. R. Fisher. During the year six young men were selected by competition to undergo the Forest course, one of whom subsequently resigned.

Mr. J. W. Oliver succeeded Mr. H. C. Hill as Director of the Imperial Forest School at Dehra Dun on the 6th July 1899, on the latter officer's appoint-

ment to officiate as Inspector General of Forests, and remained in charge for the rest of the year. Mr. F. Gleadow continued to hold the post of Deputy Director except for a period of three months, when he availed himself of privilege leave, and Mr. A. F. Gradon, the Senior Instructor, officiated for him. Mr. A. M. F. Caccia held the post of Junior Instructor throughout the year, and Mr. R. McIntosh, from Madras, officiated as Instructor for three months. Babu Upendra Nath Kanjilal continued to hold the appointment of Vernacular Instructor, and Babu Birbal that of Assistant Vernacular Instructor and Curator. The School staff was as usual assisted by Mr. J. F. Duthie, Director of the Botanical Department, Northern India, Dr. J. W. Leather, Agricultural Chemist to the Government of India, the late Mr. E. Barlow of the Indian Museum, Mr. R. C. Milward, Assistant Conservator of Forests, and several other officers of the School Circle. The number of candidates who presented themselves at the entrance examination held during the year was 111, of whom 71 qualified and 41 were admitted to the School, together with four who had qualified on previous occasions and three who held University degrees which exempted them from examination, making in all 48 students, of whom 30 were private students and 11 were deputed from Native States. At the close of the year the number of students attending the School was 99, as compared with 95 on the 1st July 1899. At the final examination held in March 1900, out of 31 students in the upper class, 24 obtained the ordinary certificate; and of the 10 students in the lower class, one passed with honours and six obtained ordinary certificates. The Director gives in his report the following information regarding passed students of the Forest School:—

"Since 1881 Higher Standard certificates have been granted to 391 students, and Lower Standard certificates to 118 students. The following table embodies the available information in regard to their subsequent careers:—

		Higher standard certificate.	Lower standard certificate.
Forest Department, India and Madras—			
Deputy Conservators	2	2	...
Extra-Deputy Conservators	3	3	...
Extra-Assistant Conservators	78	77	1
Rangers	209	176	33
Deputy Rangers	43	7	36
Foresters	2	1	1
	337		
Commission	5	4	1
Police	2	2	...
Ceylon Forest Department	3	3	...
Forest Department of Native States	69	51	18
Left the service	18	12	6
Deceased	37	22	15
No information is available in regard to	38	31	7
TOTAL	509	391	118"

At the College of Science, Poona, 8 of the 11 students who presented themselves passed the final examination held in January 1900, but the Professor of Forestry reported that the physique of nearly all the examinees was poor and that a stricter test should be insisted upon.

A Forest School was opened in Burma in August 1899, and the provisional rules under which the School was started were soon found to need considerable modification, but at the close of the year it was too soon to form any opinion on the practical value of this School. The course of instruction lasts two years, and

it has been agreed that the School should be open to Rangers and Deputy Rangers, instead of limiting the training to Foresters and Guards as originally intended. The number of students undergoing instruction at the School at the close of the year was fifteen. The School opened under the management of Mr. E. M. Buchanan, Extra-Deputy Conservator, who was assisted during the latter part of the year by Mr. Hatim Tai, a Ranger trained at the Imperial Forest School, Dehra Dun.

V.—Forest Administration in Native States.

Copies have been received of the Reports of Forest Administration in the Jammu and Kashmir, Mysore, Jodhpur and Hyderabad States.

Jammu and Kashmir State.—In Jammu and Kashmir the State forests remained under the management of Mr. J. C. McDonell. The estimated total area of the forests under the control of the Forest Department was 2,294 square miles at the close of the year, of which 1,035 square miles were completely and 328 square miles partially demarcated. In 524 square miles of the above total area the deodar is estimated to be the principal species, a considerable increase during the year having been due to the lapse of the Ramnagar *jagir* forests to the State. Good progress was made in the survey of boundary lines, and at the close of the year the area of forests so surveyed stood at 846 square miles.

It is observed with satisfaction that the preparation of rough working-plans is being proceeded with, although slowly, as such plans have only been prepared for eight forests comprising 17 square miles. In most cases these plans have been based on valuation surveys of sample plots, but in the absence of any information regarding the rate of growth or the manner in which the exploitable size has been arrived at, it is impossible to check the possibilities as worked out by Mr. McDonell. Now that the demarcation of a large area of forests has been completed, it appears highly desirable that the preparation of regular working-plans should be pushed on vigorously, at any rate for the most important forests; and in order that such work may be carried out within a reasonable time, it seems advisable that a specially trained staff should be entertained for the purpose—a course which would be fully justified by the value of the forests concerned. It should be remembered that the possible yield of forests cannot be guessed, and that until enumeration surveys are carried out on a large scale, and other necessary data are collected, the working of the forests proceeds in the dark.

A large number of cases of forest offences on the books of the Forest Department were written off as untraceable by the Courts, and there seemed to be no improvement in the dilatory manner in which the Courts treat the cases which are sent before them. The Conservator complains of the laxity of the Courts towards offenders in forest cases, and that there is good foundation for such complaint is evident from the fact that of 159 cases disposed of during the year, convictions were obtained in only 76 or 47 per cent.; many cases are also dismissed for want of proof owing to the delay, which often amounts to several years, in disposing of them. The number of cases compounded by the Department was 479. The number of fires reported was 144, affecting some 10,600 acres, but no serious damage appears to have been caused by them.

Much reckless felling was carried out in the past by traders in many of the deodar forests, and it is satisfactory to learn from the report that these forests are gradually recovering from its effects and that the natural reproduction of the deodar is generally excellent.

The gross outturn of timber and fuel from the State forests was 36,186,750 cubic feet, of which 5,035,253 cubic feet consisted of timber. The amount of timber exported from *jagir* forests comprised 895,446 pieces, including nearly 7 lakhs of deodar sleepers, more than half of the latter coming from Bhadarwah. Omitting the figures for the forests of the Ramnagar *jagir*, the gross revenue amounted to R10,00,804 and the expenditure to R3,62,408, leaving the handsome surplus of R6,38,396, as compared with an average of 5 lakhs for the nine years since the present administration began.

Much has been done to place forest administration in Kashmir on a sound basis, but there is little doubt that the undermanning of the controlling staff and the apparent difficulty which is experienced in appointing suitable subordinate officers militate against the scientific working of the forests and even improved financial results.

Mysore State.—The Report on the Mysore forests was submitted to the Government of Mysore by Mr. J. L. Pigot, who remained in charge of the forest administration throughout the year. There was a slight increase of 10 square miles in the area of State forests, which stood at 1,757 square miles at the close of the year. The area of reserved lands rose from 266 to 308 square miles. Little progress was made under the head of forest settlement and selection of further lands for reservation. The sum of R9,275 is shown as spent under demarcation, but of this only R872 represents actual outlay on work done, the balance being on account of the cost of temporary protective establishments which are to be hereafter absorbed into the permanent strength. The Report gives no idea of the actual state of demarcation, or what remains to be done. Survey work is stated to be capable of much improvement, as it is at present carried out in a manner the reverse of methodical. Some progress was made during the year in preparing working-plans on very simple lines, and in the collection of statistics for future work. The number of new breaches of the forest rules was 328, and of 326 cases decided by the Courts, convictions were obtained in 81 per cent. Fire-protection was less successful than in the preceding year, owing partly to the unusual drought and partly to the inadequate measures taken in certain localities. Protection was attempted over an area of 1,465 square miles, and failed on 112 square miles, or 7·69 per cent. The cost of fire-protection was R13,963, which the Conservator states is unduly high considering the results secured. As an experiment, sanction was granted by the Mysore Government to rewards being made to persons or communities who kept forests free from fire, rendered exceptional service in suppressing fires, or gave evidence or information leading to the conviction of incendiaries; no rewards were, however, recommended or granted.

The revenue realized was R13,39,587 and the expenditure R4,58,133, leaving a surplus of R8,81,454, as compared with R7,00,558 in the previous year. These improved results were chiefly due to increased sales of timber and sandalwood, and to more economical working. The quantity of sandalwood sold was 2,120 tons, as compared with 2,074 tons, in the preceding year, and the amount realized was R9,31,666, as against R7,89,760. The average value of sandalwood per ton was R440, or R59 more than in 1898-99.

Jodhpur State.—The severe drought and famine affected forest administration very adversely in the Jodhpur State. No change occurred in the total area under the management of the Department, which remained at 343 square miles. In consequence of the famine, a lenient view is stated to have been

taken of forest offences, and most of the cattle impounded for illicit grazing were released with a warning. The number of cases compounded departmentally was 582, but no explanation is given for the sudden increase in the average amount of compensation levied per case from R1-15-2 in the previous year to R6-6-5, and it is hardly consistent with the above statement regarding leniency. As a measure of famine relief, the Marwar forests were thrown open in September 1899 to the people, who were allowed to remove free of charge all products except timber and bamboos, and to graze their cattle without restriction. The construction of roads, tanks and wells was carried out in the forests, with a view to providing relief works and to help the forest tribes. In the absence of any combustible material on the ground, no fires occurred in the forests. The gross outturn of timber and fuel from the State forests was apparently 473,760 cubic feet, as against 502,415 cubic feet in 1898-99; there was a large falling off in the amount of timber and fuel removed by purchasers, and on the other hand a great increase in the quantity of fuel removed by Raj agency, due to the necessity for providing fuel for the various famine relief camps. The figures in the body of the Report do not always seem to correspond with those in the annual forms, but, omitting the accounts for *jagir* forests and arboriculture, the financial results appear to have been—Revenue R13,734, Charges R19,042, leaving a deficit of R5,283, as compared with a surplus of R7,713 in the preceding year.

Hyderabad State.—The famine added considerably to the difficulties under which forest administration in His Highness the Nizam's Dominions is conducted, and the forests suffered severely from the indiscriminate grazing and lopping which ensued on the remission of the usual grazing fees. The Report is written by the Conservator, Mr. W. F. Biscoe, and bears ample testimony to the urgent want of a definite and enlightened forest policy on the part of the Nizam's Government. The area of forest lands at the disposal of the State appears to be very considerable, but much of the most valuable forest growth is rapidly disappearing or deteriorating owing to illicit fellings and the absence of a well regulated management. The area of State Reserves at the close of the year stood at 5,005 square miles, but they seem to be honeycombed with undemarcated cultivated and private lands, and, as it is stated that the area of Reserves will eventually be reduced by 35 per cent. when the *jagirs*, etc., have been excluded by interior demarcation, the lines upon which reservation has hitherto proceeded do not appear to have been satisfactory. Under these circumstances it is not surprising to read in the Report of constant encroachments on and misappropriation of the produce of State forests by jagirdars and others.

The introduction of a suitable forest law or regulation, under which the forests can be settled and protected, is apparently an urgent need in this State, and until this is done and the Department properly organised and equipped, forest administration in Hyderabad will remain unsatisfactory. The financial results show, Receipts R2,88,376; Expenditure R1,41,806; leaving a Surplus of R1,46,570, as compared with R2,39,283 in the previous year. Of the expenditure, only the small sum of R9,970 was spent on "Conservancy and Works."

Simla Hill States.—The arrangements made in 1886-87 by which an officer of the Imperial Forest Service was appointed as Assistant to the Superintendent of Hill States, with a view to bringing about the demarcation and

systematic working, within their capabilities, of the forests belonging to the different States in the Simla District, have, with few exceptions, been productive of the best results. The exceptions have been either where the Rana for any reason has been antagonistic to interference and unwilling to act on advice that was at once gratuitous and forced upon him, or in certain cases where the management of the forests in poor States found plausible ground for the entertainment in a paid State appointment of some relative of the Chief. These exceptions have, however, been few and, as a rule, a great deal of work has been done in the shape of demarcation, settlement and record of adverse rights, protection from fire, works of improvement, and regulation of felling operations. In some of the States it has been found possible to draw up regular working-plans, and a recent inspection of the valuable forests of the Jubal State enables me to testify to the good work done there as a consequence of the policy inaugurated in 1886-8.

APPENDICES.

Summary of the Revenue and Expenditure of the

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	4,120	56,770	5,43,130	11,28,610	25,51,296	4,97,480	1,02,690	96,310	1,18,560	2,680	3,370
II.—Timber and other produce removed from the forests by consumers or purchasers.	1,970	10,35,500	10,06,770	2,06,190	12,40,970	29,17,190	6,86,200	3,35,180	42,420	6,860	1,640
III.—Drift and waif wood and confiscated forest produce.	...	9,850	19,270	26,730	1,51,310	56,310	1,500	5,910	...	60	...
IV.—Revenue from forests not managed by Government.	...	...	11,330	4,830	3,10,640	...	...	86,350	...	...	11,840
V.—Miscellaneous	...	36,790	34,240	31,100	45,020	35,810	28,170	44,050	4,430	670	210
Total Revenue . .	6,090	11,38,910	16,14,740	14,00,770	43,03,230	35,06,820	8,19,260	5,68,100	1,62,410	10,270	17,060
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	220	34,020	2,37,730	5,00,880	5,80,230	2,40,740	2,06,270	43,310	17,570	900	1,690
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	37,980	17,540	770	20,360	4,830	61,870	3,730	...	20	...
III.—Drift and waif wood and confiscated forest produce.	...	2,240	5,780	5,890	19,120	33,550	10	180	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	5,020	...	6,090	...	...	30,430	...	...	590
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	24,150	2,19,910	...	...	...	8,890	...	...	...
VI.—Live-stock, stores, tools and plant	...	19,920	16,200	10,630	42,378	27,240	22,710	14,850	1,280	160	60
VII.—Communications and buildings .	...	59,340	95,390	47,420	31,18)	19,690	17,410	19,090	6,110	880	90
VIII.—Demarcation, improvement, and extension of forests.	320	51,690	1,10,990	45,80)	2,14,970	1,13,200	1,51,240	28,710	8,530	1,380	490
IX.—Miscellaneous	...	14,200	8,170	3,880	31,628	10,450	5,410	2,320	810	480	100
Total A.—Conservancy and Works .	540	2,29,690	5,20,970	8,55,130	10,06,240	4,49,700	4,65,610	1 56,510	34,300	3,670	3,020
B.—Establishments.											
I.—Salaries	78,100	2,48,130	3,49,820	2,84,600	4,09,140	4,15,220	3,27,880	2,68,190	33,120	9,480	22,500
II.—Travelling allowances . . .	14,680	42,430	44,010	46,870	59,260	63,180	47,560	23,980	5,690	1,010	2,710
III.—Contingencies	3,230	14,950	27,590	25,460	26,630	17,869	50,390	8,460	1,110	1,190	450
Total B.—Establishments .	96,010	3,05,520	4,21,410	3,56,330	4,95,230	4,96,270	5,75,830	2,00,630	39,920	11,680	25,660
Grand Total of Expenditure .	96,550	5,45,210	9,42,380	12,11,460	15,01,470	9,45,970	10,41,440	3,57,140	74,220	15,350	28,680
Surplus .	...	5,93,700	6,72,360	1,89,310	28,03,760	25,60,850	...	2,10,960	88,190	...	...
Deficit .	90,460	...	...	...	...	...	2,22,180	...	...	5,080	11,620

DIX I.

Forest Department in India for the year 1899-1900.

Territories).			Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand Total.	Budget Heads.
Andamans.	Forest School.	Forest Surveys (Imperial).							
R	R	R	R	R	R	R	R	R	REVENUE.
3,57,410	...	...	53,65,920	5,15,380	10,81,790	69,62,593	...	69,62,590	I.—Timber and other produce removed from the forests by Government agency.
2,690	...	...	75,81,880	16,62,900	12,27,170	1,04,05,250	1,72,370	1,06,77,620	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	2,73,980	9,380	5,160	2,88,520	120	2,88,640	III.—Drift and waif wood and confiscated forest produce.
...	...	...	4,24,990	...	7,790	4,32,780	...	4,32,780	IV.—Revenue from forests not managed by Government.
500	3,210	420	2,61,620	1,14,630	62,990	4,42,240	5,740	4,47,980	V.—Miscellaneous.
2,60,600	3,210	420	1,38,13,390	23,02,190	24,15,200	1,85,31,330	4,78,230	1,90,09,610	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
25,170	...	...	19,64,320	2,33,690	6,94,350	29,12,560	...	29,12,560	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	1,67,100	1,04,050	35,200	3,06,350	25,580	3,34,930	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,26,770	1,350	290	1,28,440	...	1,28,440	III.—Drift and waif wood and confiscated forest produce.
...	...	...	42,130	...	...	42,130	...	42,130	IV.—Revenue from forests not managed by Government.
...	...	...	2,72,950	17,010	31,090	3,21,050	15,550	3,36,600	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
19,400	440	...	1,75,260	12,790	1,12,500	3,40,550	2,910	3,43,460	VI.—Live-stock, stores, tools and plant.
4,040	90	...	5,00,670	53,970	21,960	4,69,600	17,180	4,86,780	VII.—Communications and buildings.
150	...	33,980	7,67,600	2,96,600	2,26,460	12,84,660	19,310	13,03,970	VIII.—Demarcation, improvement, and extension of forests.
790	4,800	...	83,190	6,900	26,930	1,27,010	2,040	1,29,050	IX.—Miscellaneous.
1,19,550	5,270	33,980	28,91,190	8,16,360	11,61,780	58,75,350	82,570	59,57,920	Total A.—Conservancy and Works.
									B.—Establishments.
19,060	60,360	...	25,75,070	6,45,180	8,07,100	40,27,350	1,20,280	41,47,630	I.—Salaries.
1,890	4,390	...	3,57,660	1,33,260	1,10,840	6,06,760	19,090	6,25,850	II.—Travelling allowances.
440	3,530	...	1,81,430	53,700	45,710	2,80,840	12,440	2,93,280	III.—Contingencies.
21,390	68,280	...	31,14,160	8,32,140	9,63,650	49,14,950	1,51,810	50,66,760	Total B.—Establishments.
1,40,940	73,550	33,980	70,03,340	16,53,530	21,28,430	1,07,90,300	2,34,380	1,10,24,680	Grand total of Expenditure.
1,19,660	...	...	68,05,550	6,48,760	2,86,770	77,41,080	2,43,850	79,84,930	Surplus.
...	70,340	38,560	...	...	...	...	...	...	Deficit.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1875-76 to 1899-1900.

REVENUE.

Provinces.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial† .	1,455	2,459	1,36,772	16,716	17,214	18,857	27,407	20,732	32,907	26,578	18,708	5,185	5,847	4,017	4,759	6,279	6,683	5,216	2,680	5,980	2,090	4,160	19,120	17,540	6,090
Bengal . .	1,98,271	2,22,401	1,25,225	1,16,027	1,19,526	5,61,340	6,33,734	6,93,958	6,94,331	5,71,152	5,97,432	6,53,631	6,57,794	6,76,997	7,63,718	7,27,392	7,89,553	7,44,830	8,01,610	7,95,670	9,18,710	10,70,650	11,89,280	9,72,316	11,38,910
North-Western Provinces and Oudh . .	12,68,356	11,50,671	12,03,108	11,26,755	10,39,966	9,42,223	10,66,694	10,13,403	16,11,285	15,72,319	14,61,495	15,73,556	12,47,154	14,62,802	17,14,156	16,37,579	17,31,514	16,52,540	17,09,860	16,58,250	16,01,340	14,34,830	13,66,670	15,63,040	16,15,710
Punjab . .	9,00,831	5,98,751	6,83,711	5,00,616	6,39,819	4,71,671	6,88,328	7,66,709	9,80,177	7,49,252	8,50,419	11,27,277	7,86,336	10,35,263	9,21,713	8,34,370	10,29,074	8,12,630	9,13,300	10,32,630	10,11,500	11,07,720	10,68,170	14,74,130	14,00,770
Burma (Lower) .	17,79,020	15,51,106	16,05,682	11,37,565	17,80,190	15,16,613	22,31,304	25,03,896	25,69,275	16,70,982	20,23,859	19,95,667	22,18,897	25,09,305	31,34,715	25,77,671	28,58,114	25,53,270	26,89,350	32,78,200	34,14,550	38,18,270	40,86,250	42,22,960	43,05,230
Burma (Upper) .	...	...	...	...	...	...	...	...	...	...	...	1,63,074	2,96,876	15,79,928	18,08,07.	16,44,257	13,77,300	20,76,630	22,96,750	21,62,580	22,81,280	25,60,680	31,29,060	41,27,830	25,08,820
Central Provinces . .	7,25,176	6,61,328	6,85,910	8,52,885	10,06,728	8,50,130	11,72,884	9,77,017	9,91,769	10,27,202	10,36,894	9,57,119	10,93,369	11,80,405	11,56,181	12,13,161	13,59,903	12,30,850	11,34,180	10,68,630	9,96,910	7,73,320	7,80,050	9,95,100	8,19,260
Assam . .	61,870	81,561	1,31,292	1,61,778	1,51,331	1,63,997	1,66,051	2,48,606	2,11,515	1,90,414	1,96,656	2,12,011	2,67,312	3,03,882	3,79,498	3,26,789	3,36,129	3,82,830	4,33,500	4,25,090	4,25,030	4,26,110	3,81,820	3,96,180	5,53,100
Coorg . .	1,07,150	75,227	1,01,915	52,020	1,01,726	87,857	1,10,361	1,39,022	87,821	1,13,223	89,386	90,291	1,27,072	1,36,183	92,753	1,35,561	1,52,897	1,20,680	1,73,790	1,53,090	1,35,250	93,000	1,20,910	1,55,070	1,52,110
Ajmer . .	110	906	3,002	1,241	1,951	1,121	4,005	7,126	8,198	10,156	9,697	11,274	14,253	13,571	11,592	15,205	19,799	14,950	14,620	12,810	15,610	12,370	15,540	14,420	10,270
Forest Surveys (Imperial) .	21	...	...	63	38	272	...	348	30	234	202	241	40	315	220	2,101	257	520	240	30	510	400	520	290	520
Forest School .	...	...	...	...	...	...	...	...	...	73	272	415	777	615	1,237	1,181	1,728	1,980	1,990	2,790	4,310	2,850	2,890	2,360	3,210
Andamans . .	5,363	4,678	1,301	5,566	2,537	27,791	43,407	76,858	24,762	12,213	23,944	31,870	1,05,062	1,05,675	1,52,195	1,58,226	2,72,233	3,09,180	4,11,790	1,14,530	1,32,120	3,62,370	4,33,730	2,29,160	2,60,000
Total . .	50,54,246	43,50,129	49,76,455	42,71,236	46,13,691	48,16,869	61,39,121	64,51,305	70,85,168	59,44,204	63,01,985	67,77,906	68,19,183	91,19,610	1,01,53,811	93,80,674	99,06,351	1,16,47,530	1,14,67,960	1,05,55,120	1,09,42,870	1,19,87,190	1,26,26,950	1,41,78,060	1,37,16,830
Madras . .	6,77,872	5,92,572	5,50,310	6,05,783	6,26,163	7,36,590	8,05,908	9,05,442	9,53,701	11,05,915	11,98,650	12,16,911	13,74,120	15,15,605	15,57,627	17,95,408	16,91,216	15,77,210	19,47,180	18,91,030	21,10,570	23,63,330	21,36,150	21,10,520	23,02,290
Bombay . .	12,46,672	12,26,658	12,61,528	11,81,891	15,24,712	15,22,807	18,23,117	20,90,353	25,03,100	27,74,842	23,65,286	30,32,676	30,32,577	28,50,190	31,37,696	22,83,220	22,84,649	22,69,550	27,91,350	27,50,050	25,36,570	30,32,710	26,16,660	22,95,150	24,15,200
Total (British India) . .	69,99,291	61,69,360	67,88,293	60,59,910	67,64,773	71,06,556	87,78,146	94,46,100	1,05,41,912	98,25,962	1,08,69,921	1,10,57,493	1,12,27,182	1,34,85,405	1,48,49,134	1,44,64,302	1,48,82,216	1,54,94,290	1,72,09,490	1,62,99,180	1,65,90,110	1,73,93,230	1,73,79,760	1,85,84,760	1,85,14,320
Berar . .	2,22,782	2,53,972	2,73,236	2,88,701	3,07,560	2,05,536	2,33,511	2,92,015	3,03,218	2,97,185	3,10,851	3,25,251	3,06,457	4,07,977	3,69,561	4,87,169	5,12,185	5,31,020	4,82,800	4,73,340	4,94,340	5,17,220	5,00,350	4,39,810	4,78,230
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	934	531	651	596	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	...	14,776	18,686	5,039	4,752	6,069	14,962	14,031	14,063	5,068	12,897	15,721	26,609	19,035	20,720	16,300	14,930	15,160	15,040	14,520	17,060
Grand Total.	72,13,573	64,22,432	70,67,529	63,48,611	70,72,271	73,87,183	90,26,273	97,45,153	1,08,54,882	1,01,29,170	1,12,05,345	1,13,96,186	1,16,46,233	1,38,98,451	1,53,03,572	1,49,67,135	1,54,17,010	1,60,44,345	1,77,13,020	1,67,88,820	1,70,99,380	1,78,56,510	1,77,95,150	1,90,38,580	1,89,69,610

* The figures in this statement have been revised by the Comptroller and Auditor-General.
† Includes certain home receipts and undistributable and petty local items.

APPENDIX II—*continued.*

EXPENDITURE.

Provinces.	1876-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	48,223	44,004	98,099	63,906	73,810	65,291	77,635	87,263	98,205	96,306	88,215	85,299	78,625	85,199	81,331	65,414	65,788	1,07,270	89,810	81,950	90,310	78,960	84,300	85,160	96,550
Bengal	1,82,676	2,14,497	2,02,912	3,38,675	2,75,753	3,35,331	3,96,612	3,82,183	3,87,812	4,11,915	3,70,399	4,22,781	3,90,364	3,76,270	3,98,150	4,16,091	4,22,930	3,81,610	4,04,016	3,97,250	4,06,970	4,00,340	4,53,440	4,06,320	5,45,210
North-Western Provinces and Oudh	7,36,979	8,61,362	7,28,906	8,69,977	7,16,594	6,73,573	9,16,212	8,39,025	10,41,335	10,20,101	9,71,519	9,19,560	8,50,788	8,44,544	9,63,151	9,19,195	9,18,211	9,23,510	9,63,020	9,36,310	9,32,260	9,05,310	9,37,850	9,72,030	9,42,280
Punjab	5,56,911	5,25,659	5,30,631	5,23,554	4,93,676	4,55,363	5,16,269	5,60,756	6,53,116	5,88,070	6,75,183	7,16,510	6,77,912	5,93,825	6,45,855	6,53,061	6,40,275	6,56,270	6,36,530	7,22,120	6,78,420	7,23,360	7,71,940	8,55,310	12,11,460
Burma (Lower)	8,15,659	10,05,554	8,58,231	7,18,492	7,53,490	7,12,563	11,50,224	12,28,955	12,17,821	12,12,223	11,50,962	10,75,830	10,32,691	12,21,945	12,32,844	10,36,175	13,25,121	13,63,250	13,41,640	13,78,230	12,57,735	15,63,250	14,01,110	15,29,570	15,91,970
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	2,188	1,23,152	7,85,129	2,23,200	3,07,215	3,73,856	4,41,756	5,20,869	5,39,760	5,75,860	6,25,530	7,92,500	8,96,020	9,45,970
Central Provinces	3,73,227	2,90,285	3,22,091	3,93,758	5,22,571	4,96,512	4,97,013	4,12,217	4,36,052	4,95,821	4,65,432	4,99,293	5,52,533	6,68,697	6,96,445	7,35,551	8,03,915	8,51,100	9,32,190	9,76,069	9,52,341	9,50,990	9,21,440	8,71,330	10,61,440
Assam	63,397	90,520	1,01,153	1,26,028	1,32,822	1,12,725	1,65,961	1,71,823	1,93,562	1,97,699	2,11,694	2,12,237	2,26,89	2,09,905	2,57,129	2,43,852	2,67,525	2,64,970	2,68,220	2,72,040	2,86,140	2,82,010	2,88,830	3,05,260	3,57,140
Coorg	80,168	23,692	26,268	31,825	55,165	56,187	59,793	64,770	75,022	76,951	65,690	71,082	72,625	80,175	72,420	65,818	85,860	73,096	83,829	86,140	85,340	71,630	87,020	80,100	71,220
Ajmer	27,346	22,160	14,926	13,445	12,750	12,823	13,951	11,234	16,578	16,316	16,469	20,751	18,857	15,676	12,701	12,720	13,983	15,005	15,900	14,900	15,730	22,010	14,670	16,200	15,950
Forest Surveys (Imperial)	58,930	58,929	60,165	60,325	46,878	40,335	42,469	41,995	20,940	19,822	19,180	28,348	32,958	22,161	21,183	24,324	26,822	22,160	27,900	29,849	29,950	31,970	33,930	33,970	33,960
Forest School	...	...	...	...	...	...	...	...	...	22,568	24,239	30,331	33,129	32,961	9,646	35,191	44,317	50,400	65,530	65,980	67,950	67,330	60,920	63,370	73,550
Andamans	...	1,397	1,008	...	1,177	2,161	2,306	1,340	12,161	22,760	37,085	35,769	62,679	57,245	94,975	1,30,052	1,79,909	2,21,210	2,44,550	1,22,780	1,62,020	3,16,600	2,47,240	1,33,400	1,40,940
Total	28,63,632	31,18,279	30,01,442	30,82,919	30,76,691	30,37,831	38,55,671	38,01,740	41,67,252	41,50,563	40,79,127	41,14,542	41,31,532	50,04,841	48,79,615	47,17,951	52,09,672	53,86,020	55,88,010	56,26,570	56,41,220	62,79,050	61,78,710	63,34,170	69,79,050
Madras	5,92,039	6,35,560	5,65,621	4,95,911	5,48,527	5,19,270	6,03,419	6,45,352	7,55,733	8,96,506	9,37,972	11,53,123	11,29,212	12,26,791	11,61,237	12,16,913	13,24,254	13,30,350	12,62,770	13,85,250	14,45,610	15,21,300	15,72,850	15,91,670	16,53,530
Bombay	7,91,161	8,33,993	8,77,716	10,01,923	10,76,939	11,67,247	11,69,181	12,78,770	15,64,172	17,78,723	18,39,461	19,52,910	19,44,005	16,93,952	17,70,691	18,63,887	19,31,457	19,01,970	20,71,910	20,67,900	19,58,390	19,69,160	20,73,190	18,39,250	21,28,130
Total (British India)	42,19,812	46,22,818	44,47,782	45,83,736	47,01,257	47,24,411	56,08,271	57,25,862	65,18,157	68,25,791	68,56,570	72,20,575	72,04,750	79,19,603	78,11,543	78,64,751	84,65,319	86,21,320	90,22,720	90,80,720	90,45,220	97,73,510	98,24,750	97,63,090	1,07,61,620
Berar	91,449	98,692	1,00,963	1,07,350	1,10,506	1,23,923	1,52,985	1,55,054	1,56,779	1,52,619	1,59,212	1,71,704	1,93,765	1,70,212	1,76,545	1,68,921	1,93,365	2,29,230	2,54,250	2,51,610	2,45,510	2,41,870	2,44,050	2,28,070	2,34,380
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	15,043	31,801	42,940	45,372	42,098	23,955	6,461	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	16,416	17,632	11,564	16,911	13,236	15,790	17,836	17,753	15,904	17,962	29,150	30,497	55,620	43,730	40,910	41,770	29,770	27,330	27,750	28,630
Grand total	43,11,261	47,17,470	45,57,750	46,91,136	48,14,713	48,69,825	57,79,133	58,92,873	67,06,890	70,06,510	70,71,551	76,55,592	74,18,366	81,29,764	80,12,518	80,63,125	86,91,182	89,06,220	93,40,700	93,72,290	93,32,610	1,00,45,150	1,01,95,730	1,00,23,920	1,10,21,630

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

STATEMENT II—*concluded.*

SURPLUS.

Provinces.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	−16,774	−21,518	38,673	−17,210	−56,595	−46,401	−50,223	−56,536	−65,259	−69,732	−73,537	−82,113	−73,775	−82,182	−76,552	−79,041	−59,160	−1,02,030	−78,100	−79,970	−77,720	−71,900	−65,170	−67,920	−90,160
Bengal	55,598	7,934	1,63,315	77,352	1,73,776	2,25,959	2,33,122	3,11,776	3,06,521	1,56,237	2,27,493	2,30,253	2,67,123	3,00,637	3,70,568	3,13,383	2,65,623	3,63,270	3,97,570	3,96,280	4,52,610	6,80,810	5,25,810	4,55,990	5,93,700
North-Western Provinces and Oudh.	5,27,377	2,59,309	4,71,182	3,16,778	3,23,372	2,62,554	1,49,221	1,71,373	5,69,558	5,52,218	4,86,976	6,53,976	4,16,706	6,18,253	7,51,008	7,18,681	7,73,303	7,21,000	7,46,810	7,21,940	6,58,180	5,38,180	4,63,220	5,96,010	6,72,360
Punjab	3,52,920	73,096	1,63,083	−22,935	1,69,113	1,76,310	1,72,039	2,05,819	2,57,031	1,91,282	1,71,936	1,10,767	1,09,021	1,51,883	2,75,858	1,81,229	3,79,799	1,66,360	2,76,870	3,10,310	3,36,080	3,84,480	2,96,530	6,19,010	1,59,310
Burma (Lower)	9,63,361	5,15,854	7,51,851	4,19,160	4,26,700	8,01,045	10,31,530	12,74,941	12,91,551	4,55,719	8,72,507	9,22,837	11,86,203	13,77,561	18,01,872	15,91,791	15,32,933	22,29,120	21,47,710	18,95,970	20,56,810	23,14,960	26,82,090	26,93,790	28,63,760
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	...	1,05,886	1,75,721	7,91,793	15,32,270	13,61,962	9,53,411	16,31,850	17,71,190	16,22,820	17,05,420	19,28,150	23,16,660	22,31,310	25,60,850
Central Provinces.	3,92,819	3,71,631	3,61,879	4,59,101	4,81,150	3,51,627	6,75,871	5,65,109	5,53,711	5,31,581	5,91,462	4,58,117	5,30,430	5,11,709	4,59,728	4,77,907	5,55,985	3,79,150	2,02,290	32,770	44,600	−1,77,670	−1,81,390	1,23,770	−2,22,180
Assam	−1,527	−8,551	33,173	25,751	31,506	26,272	693	67,782	11,883	−17,285	−14,838	−278	40,129	99,977	1,27,369	42,911	68,001	1,18,760	2,20,210	1,63,080	1,28,850	1,54,120	86,970	92,820	2,10,960
Coorg	67,292	42,285	64,757	17,191	46,621	31,370	40,563	73,252	12,719	25,282	23,095	25,203	54,339	56,603	29,333	69,743	96,037	1,07,550	85,904	66,910	49,410	21,170	53,890	71,930	88,190
Ajmer	−26,996	−21,555	−11,921	−12,994	−11,829	−11,299	−9,849	−4,158	−6,728	−5,850	−6,772	−9,170	−4,691	−2,162	−1,140	2,546	5,813	−110	−1,220	−2,060	−90	−9,640	870	−1,220	−5,080
Forest Surveys (Imperial)	−58,969	−53,929	−60,165	−60,282	−46,840	−40,053	−42,189	−41,217	−30,908	−19,589	−18,978	−23,107	−32,825	−21,819	−29,963	−22,220	−26,625	−21,640	−27,660	−29,760	−29,440	−31,570	−33,730	−33,630	−33,569
Forest School	...	...	...	...	...	...	...	...	...	−22,195	−23,966	−30,116	−32,252	−32,512	−23,409	−21,007	−42,559	−48,823	−63,515	−63,150	−63,610	−64,530	−58,090	−61,016	−70,310
Andamans	5,363	3,372	203	5,561	−4,710	25,571	46,101	69,018	12,601	−517	−13,091	6,101	41,383	48,780	67,220	28,274	92,129	1,29,280	1,97,240	−3,250	30,100	45,770	1,86,370	91,060	1,19,660
Total	21,90,611	18,01,850	19,72,913	11,83,228	15,35,203	18,69,045	23,03,250	26,19,565	29,17,856	17,93,561	22,25,828	25,63,258	26,88,152	41,14,766	52,73,196	46,32,720	46,96,733	56,61,516	58,79,950	50,18,650	53,01,540	57,17,14	63,18,610	78,43,920	68,17,170
Madras	85,838	−12,987	−15,316	1,10,573	77,611	2,17,610	2,63,189	2,61,090	1,65,971	2,70,411	2,00,678	93,789	2,15,706	2,96,212	3,96,896	5,48,495	3,69,922	2,46,820	5,81,110	5,07,080	6,61,980	7,69,080	5,63,640	5,15,850	6,48,760
Bombay	5,51,531	3,87,679	3,83,817	1,76,971	5,17,723	3,56,460	6,58,906	8,11,583	9,38,928	9,96,119	15,26,825	10,79,706	10,83,572	11,56,228	13,67,005	14,16,233	13,53,192	13,61,580	17,22,410	16,82,110	15,78,220	10,63,550	15,43,470	1,55,960	2,16,770
Total (British India).	27,28,979	21,76,542	23,40,511	14,76,101	20,60,567	24,82,115	31,65,675	37,22,238	40,23,755	30,60,171	40,13,331	37,36,913	40,22,432	55,65,206	70,37,591	65,99,548	64,19,857	72,72,910	81,86,770	72,18,440	75,41,740	75,49,724	74,55,750	83,15,670	77,52,700
Berar	1,41,282	1,58,420	1,60,258	1,81,356	1,93,994	1,37,588	89,526	1,36,960	1,56,439	1,44,536	1,26,909	1,51,562	2,22,682	2,37,765	2,63,932	3,18,183	3,12,819	2,01,700	2,28,550	2,21,780	2,48,830	2,75,950	1,56,900	2,01,770	2,43,850
Forest Surveys (Berar).	...	...	...	...	...	...	...	...	−15,043	−33,870	−42,909	−41,821	−41,502	−23,955	−6,464	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	−2,040	731	−6,922	−12,159	−7,177	−837	−3,755	−3,650	−10,326	−4,085	−13,726	−9,838	−36,590	−43,000	−29,610	−26,810	−14,310	−12,230	−12,810	−11,620
Grand Total	28,72,262	23,04,962	25,09,773	16,57,458	22,57,561	25,17,663	32,47,135	38,52,276	41,47,992	31,63,660	41,37,794	39,42,894	41,99,962	57,68,690	72,91,054	69,04,910	67,22,838	73,38,116	83,72,220	73,15,560	77,66,770	78,11,364	75,99,760	90,01,920	79,81,930

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

G. I. —No. 477 R. & A. —20-1-1902.—270—I. W. L.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1900-01.

OF THE
BOMBAY
BRANCH
OF THE

BY

R. C. WROUGHTON,
OFFICIATING INSPECTOR-GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

VI -- 6

CALCUTTA:
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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREAS.

I.—Alterations in Area.

The following table shows the alterations that took place during the year in the areas of the *Reserved forests*:—

Province.	Area, in Square Miles.				Remarks.
	In 1899-1900.	Added in 1900-1901.	Excluded in 1900-1901.	At close of 1900-1901.	
Bengal	5,881	...	...	5,881	
North-Western Provinces and Oudh	4,049	11	10	*4,050	*Includes 152 square miles of *leased* forests.
Punjab	2,891	11	5	†2,897	†Includes 342 square miles of *leased* forests.
Burma (Lower)	17,154	806	123	‡17,837	‡Includes 1,013 square miles of *taungya* areas.
Central Provinces	18,915	1,240	1,274	18,881	
Assam	3,609	...	...	3,609	
Coorg	238	...	...	238	
Ajmer	139	...	...	139	
Baluchistan	205	...	2	203	
Andamans	156	...	...	156	
Total	53,237	2,068	1,414	53,891	
Berar	4,176	128	351	3,953	
Total Bengal Presidency	57,413	2,196	1,765	57,844	
„ Madras „	15,862	741	14	16,589	
„ Bombay „	13,695	62	50	§13,707	§Includes 679 square miles of *leased* forests in the Dangs, Surat District.
Grand Total, 1900-1901.	86,970	2,999	1,829	88,140	
Grand Total, 1899-1900.	84,150	3,618	798	86,970	

The net increase in the area was 1,170 square miles as compared with 2,820 square miles in the preceding year. The largest additions were made in

Madras and Burma, while the addition of 709 square miles in the Central Provinces was more than balanced by the exclusion of 724 square miles consequent on the reclassification of the forests. The changes in area in the other provinces were of a petty nature.

2. The area of *all* forest lands under the management of the Forest Department is shown below :—

Province. Name.	Area, in square miles.	Forest area, in square miles. Reserved.	Protected.	Unclassed State.	Total.	Proportion of Forests to whole area of Province.	Remarks.
						Per cent.	
Bengal	152,090	5,881	3,656	4,033	13,570	8·96	
North-Western Provinces and Oudh.	106,774	*4,050	39	43	4,128	3·86	* Includes 152 square miles of *leased* forests.
Panjab	110,898	†2,897	4,888	1,969	9,754	8·80	† Includes 342 square miles of *leased* forests.
Burma	162,454	‡47,837	...	31,562	99,399	61·19	‡ Includes 1,013 square miles of *taungya* areas.
Central Provinces	86,463	18,881	...	138	19,019	21·99	
Assam	41,380	3,609	...	17,239	20,848	50·38	
Coorg	1,582	238	663	...	901	56·96	
Ajmer	2,646	139	...	10	149	5·62	
Baluchistan	...	203	...	...	203	...	
Andamans	2,000	156	...	1,795	1,951	97·56	South island only.
Total	666,287	53,891	9,237	106,789	169,917	§25·52	§ Baluchistan left out of account.
Berar	17,707	3,953	...	...	3,953	22·32	
Total Bengal Presidency	683,994	57,844	9,237	106,789	173,870	§25·42	
„ Madras „	141,456	16,539	...	‖2,952	19,541	13·82	‖ "Reserved Lands."
„ Bombay „	122,898	¶13,707	1,251	...	14,958	12·17	¶ Includes 679 square miles in the Dangs, Surat District.
Grand Total, 1900-1901	948,348	88,140	10,488	109,741	208,369	§21·97	
„ „ 1899-1900	950,921	86,970	8,089	102,401	197,460	§20·71	

The total increase is thus 10,909 square miles, and for this Burma is chiefly responsible.

The details of the principal changes are shown below :—

Bengal.—Nineteen square miles of protected forests in the Sundarbans were given up to allow for the extension of cultivation.

North-Western Provinces and Oudh.—Half a square mile was excluded in Bundelkhand under forest settlement proceedings. In the Bahraich Division nearly two square miles were

excluded in exchange with the Bhinga estate, this exclusion is nominal only, as an equal area from the estate has to be added, and this has since been done, though the notification had not appeared at the close of the year.

Punjab.—A revision of area consequent on the new working-plan shows 11 square miles added in the Rawalpindi Division.

In the Montgomery Division 17 square miles were excluded, being transferred to the Colonization Department, while 563 square miles of unclassed forest were added in the Multan Division, chiefly owing to re-measurement consequent on the settlement operations.

The net additions were 553 square miles.

Burma.—In the Pegu Circle 282 square miles were transferred from leased to reserved forests. The total area shows a reduction of 124 square miles, of which survey corrections were responsible for 123 square miles, while one square mile was disforested.

In the Tenasserim Circle 133 square miles were added to the reserves, principally from the unclassed forests; survey corrections accounted for an increase of 18 square miles. The unclassed forests show a decrease of 150 square miles—due to the formation of reserves 123 square miles, and the balance due to correction in area, the net change in this Circle being a decrease of 17 square miles.

The Northern Circle shows a net decrease of 10 square miles due to corrections after survey, while 137 square miles were transferred from unclassed to reserved forest.

In the Southern Circle 207 square miles were transferred from unclassed to reserved forest, while 10,145 square miles were added to unclassed forests, and 11 square miles of reserved forest disforested, the net increase being 10,134 square miles.

Central Provinces.—The change in area is represented by a reduction of 77 square miles.

In the Southern Circle, the area of the reserves increased by 41 square miles—due to 44 square miles of new areas reserved and to corrections made after survey. In the forests of B.-I Class (areas available for cultivation) and in unclassed forests, 26 and 44 square miles, respectively, were disforested for cultivation. The total decrease in area was 27 square miles.

In the Northern Circle, the total area of Government forests was reduced by 50 square miles, owing chiefly to re-measurement and disforestation.

One thousand one hundred and eighty square miles were transferred in the Damoh and Betul Districts from B.-II Class to A.-Class forests, *i.e.*, those under strict conservation.

Assam.—The State forests increased by an area of 787 square miles—due to additions and exclusions in the unclassed forests. Eight hundred and twelve square miles in the Naga hills were formed into State forest and included in the Sibsagar and Nowgong Divisions.

Coorg.—As in the previous year, the area of the reserved forests remained the same, while two square miles relinquished by planters and ryots were added to the area of "paisaries."

Ajmer.—There was no change in area.

Baluchistan.—The area of the State forests was reduced by two square miles owing to disforestation.

Andamans.—A small area of 66 acres was disforested and cleared by the Settlement authorities. Otherwise the area remains as before.

Berar.—The area of the State forests was diminished by 223 square miles, accounted for by 231 square miles having been disforested for free grazing, while 8 square miles were added from lapsed leased villages. The re-classification of free-grazing areas was completed in four districts, leaving one district still to be dealt with.

Madras.—There was a total decrease of 108 square miles, although the net area of the reserved forests increased by 727 square miles, while the area of reserved lands decreased by 835 square miles, chiefly due to exclusions made under settlement.

Bombay.—The area increased by 13 square miles, chiefly in the Sindh Circle, where 24½ square miles were reserved; 14½ square miles transferred to the Khairpur State and one square mile lost by river action. In the Northern Circle 2½ square miles were added and reserved. The other changes were of a trifling nature.

II.—Forest Settlements.

Good progress was made in Forest Settlements in the Punjab, Burma, and Madras. In the North-Western Provinces and Oudh, and in Bombay (with the exception of the forests in the Kanara District), little now remains to be done.

The following table shows the progress made during the year:—

Provinces.	Areas already settled at the commencement of the year.			Areas finally settled during the year.					
				Area.			Expenditure incurred.		
	Reserved forests.	Protected forests.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
	Sq. ms.	Sq ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	R	R	R
Bengal	5,881	...	5,881	...	...	...	...	...	...
North-Western Provinces and Oudh.	(a)3,927	30	3,957	2	...	2	...	...	...
Punjab	(b)2,549	(c)2,473	5,022	5	2,407	2,412	...	...	...
Burma	17,130	...	17,130	790	...	790	1,686	...	1,686
Central Provinces	18,914	...	18,914	43	...	43	...	...	...
Assam	3,609	...	3,609	1	...	1	...	...	...
Coorg	238	...	238	...	...	...	...	...	...
Ajmer	139	...	139	...	...	...	...	...	...
Baluchistan	205	...	205	...	...	...	...	...	...
Andamans	156	...	156	...	...	...	...	...	...
Berar	4,176	...	4,176	...	...	...	...	...	...
Total Bengal Presidency	56,924	2,503	59,427	841	2,407	3,248	1,686	...	1,686
„ Madras „	15,862	...	15,862	731	...	731	11,263	...	11,263
„ Bombay „	13,142	1,023	14,165	28	...	28	2,387	...	2,387
Grand Total, 1900-1901	85,928	3,526	89,454	1,600	2,407	4,007	15,336	...	15,336
„ „ 1899-1900	77,759	3,141	80,900	2,804	...	2,804	13,573	...	13,573

Province.	Area undergoing settlement.								
	At commencement of the year.			Taken in hand during the year.			Expenditure incurred during the year.		
	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected	Total.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	R	R	R
Bengal	842	...	842	...	...	...	...	...	...
North-Western Provinces and Oudh.	...	...	...	...	...	...	...	...	...
Punjab	13	...	13	...	...	...	...	...	...
Burma	1,444	...	1,444	912	...	912	8,671	...	8,671
Central Provinces	50	...	50	2	...	2	...	...	...
Assam	104	...	104	51	...	51	...	...	...
Coorg	...	...	...	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...
Berar	...	...	...	...	...	...	...	...	...
Total Bengal Presidency	2,453	...	2,453	965	...	965	8,671	...	8,671
„ Madras „	1,345	...	1,345	373	...	373	11,004	...	11,004
„ Bombay „	35	241	276	½	...	½	1,267	...	1,267
Grand Total, 1900-1901	3,833	241	4,074	1,338½	...	1,338½	20,942	...	20,942
„ „ 1899-1900	4,099	...	4,099	1,936	204	2,140	57,152	...	57,152

(a) Exclusive of 162 square miles of *leased* forests already settled.
(b) Exclusive of 342 square miles of *leased* forests and 128 square miles of Civil and Military Reserves already settled.
(c) Exclusive of 182 square miles of Civil Protected forests already settled.

The details of the work in the various provinces are shown below:—

Bengal.—Although no areas were finally settled during the year, some progress was made in the settlement of the proposed reserve in the Chittagong Division. The question has,

however, been engaging the attention of the Lieutenant-Governor, and bettter progress is anticipated in the future.

North-Western Provinces and Oudh.—The progress made in forest settlements is very clearly explained in the Local Government's resolution :—

"In the Central Circle these were of small importance, but in the Oudh Circle considerable progress was made. The long standing question of the exchange of areas with the Khairagarh and the Balrampur estates has been practically completed : 28,823 acres of forest land will be handed over to the former estate and disafforested. The exchanges with the Balrampur estate are completed, but notifications awaited issue at the close of the year. By these exchanges a greatly improved boundary will be secured. The forest settlements in the School Circle were of an unimportant character. The investigation into the relations existing between the Department and the agricultural communities, referred to in last year's review, has been brought to a conclusion, the report on the Jaunsar tract having been received. A careful and detailed enquiry established the fact that the villagers had been treated with care and consideration by the forest officials, and that they had no valid grounds for complaint. A similar enquiry made by the Deputy Commissioner, Garhwal, led to the same conclusions, and some further concessions advocated by him were accepted by the Forest Department. In the Bundelkhand Division a revised record-of-rights has been prepared for the Lalitpur forest and certain additional rights and concessions have been sanctioned ; and in Banda the rates of grazing have been reduced.

A scheme for the future management of the Pilibhit forests has been matured, which will, it is hoped, preserve the forests without unduly restricting the rights of the villagers. Similar schemes are being prepared for Bahraich and Gonda."

Punjab.—The forest settlement operations undertaken during the year consisted of two square miles in the Multan Division and three square miles in the Shahpur Division constituted reserved forests, and 2,407 square miles constituted protected forests in the Rawalpindi (59 square miles) and Multan (2,348 square miles) Divisions, while the settlement of the Shahpur-Kandi forests was under consideration but not completed during the year.

Burma.—In the Pegu Circle, 282 square miles were finally settled and included in the reserves, the most important addition being in the Thayetmyo (31 square miles), Bassein (68 square miles), and Henzada (180 square miles) Divisions. In the Tenasserim Circle, 123 square miles were settled in the Thaungyin and Ataran Divisions. In the Northern Circle, 173 square miles were settled, *viz.* 88 square miles in the Upper Chindwin Division and 85 square miles in the Katha Division. In the Southern Circle, 212 square miles were finally settled, *viz.* 57 square miles in the Ruby Mines Division, 4 square miles in the Madaiay Division, 99 square miles in the Yaw Division, 20 square miles in the Minbu Division and 32 square miles in the Pyinmana Division. The total area thus settled was 790 square miles. Forest settlement work now remains to be done in 1,445 square miles, while 4,513 square miles which had been under settlement operations had still to be finally notified at the close of the year.

Central Provinces.—An area of 43 square miles was finally completed and notified, 42 square miles of which were in the Seoni Division of the Southern Circle, while 2 square miles were undergoing settlement at the close of the year.

Assam.—One square mile, chiefly in the Goalpara Division, was notified during the year, while settlement operations were in progress in 51 square miles at the close of the year.

Coorg.—Nothing was completed during the year, though settlement is in progress in the Ghât forests and in the more valuable "paisaries."

Ajmer.—Nothing is reported to have been completed ; the officer in charge writes :—

"The revised record-of-rights, grazing, and grass-cutting rules have not yet been enforced. No final order on grazing and grass-cutting rules have been passed."

Baluchistan.—No progress was made in the reservation of fresh areas, the matter being still under consideration.

Andamans.—Nothing was done.

Berar.—No settlement was carried out, but the re-classification of areas was completed in the Ellichpur, Amraoti, Akola, and Buldana Divisions, while that for the Basim Division is under consideration.

Madras.—Steady progress was made. Seven hundred and thirty-one square miles were completed. The remarks made by the Madras Government are as follows :—

"The total area under the direct control of the department at the end of the year was 19,531 square miles, of which 16,589 square miles had been finally constituted reserved forests and 1,873 square miles were under settlement. Of the remaining 1,079 square miles, some 200 square miles in South Malabar, Bellary and the Nilgiris consist of leased forests, and it is doubtful whether any very large proportion of the remainder will be ultimately constituted reserved forest. Thus, allowing for the further selection of some 175 square miles, as estimated in paragraph 11 of the report, there were in all at the beginning of the current year not more than 3,000 square miles for final settlement. It is anticipated that the work will be completed by two special settlement officers within a period of three years from the 1st April 1902."

Bombay.—Most of the work has been completed. Little progress was made during the year in the completion of what remains, probably owing to famine. The following remarks on the subject were made by the Bombay Government :—

"Forest settlement work has not made much progress. Mr. Wood has now returned to Thana and the work in those Divisions is being rapidly pushed on. It has not yet been found possible to spare an officer to take up the work in Kanara, but the Governor in Council hopes to be able shortly to depute an officer for this duty. The doubt expressed by the Collector of Satara as regards the legal validity of settlement proceedings held by Assistant or Deputy Collectors who have not been appointed Forest Settlement Officers has been removed by orders directing the appointment *ex-officio* of all Sub-divisional Officers of talukas, where there are forests."

III.—Demarcation.

The new demarcation work was most extensive in Madras, Bombay and Burma. Much boundary work still remains to be done in the Punjab, Burma, Madras and Bombay. Repairs to previously existing boundaries were carried out in all the provinces and cost R50,131, as against R65,776 in the preceding year. The cost of the new work was R60,921, as against R54,396 in 1899-1900, showing an average of R11·7 per mile, as against R10·9. The cost varied much in the different provinces, from R59·1 per mile in the North-Western Provinces and Oudh to R1·3 per mile in the Central Provinces. The total expenditure on demarcation work was R1,11,052, as compared with R1,20,172 in 1899-1900.

The total length of boundaries in the accompanying statement is less than the previous year, owing to a decrease of some 2,800 miles in the Bombay Presidency consequent on revision and correction.

The following table shows the detail of the boundaries in the various provinces at the close of the year:—

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	₹	₹
Bengal	.....	25	3,217	155	3,397	57	1,764	5,218	78	10,717
North-Western Provinces and Oudh.	Central Circle	44	299	2,190	2,533	29	698	3,260	1,602	2,199
	Oudh „	11	274	1,028	1,313	25	268	1,606	1,712	1,280
	School „	5	320	394	719	68	352	1,139	232	1,235
	Total	60	893	3,612	4,565	122	1,318	6,005	3,546	4,714
Punjab	.....	43	1,215	10,029	11,287	4,256	1,196	16,738	1,443	2,983
Lower Burma	Pegu Circle	358	874	1,154	2,386	285	1,202	3,873	2,945	1,960
	Tenasserim Circle	74	957	1,625	2,556	129	519	3,204	3,922	3,950
	Total	432	1,831	2,679	4,942	414	1,721	7,077	6,867	5,910
Upper Burma	Northern Circle	279	1,354	943	2,576	9	844	3,429	1,912	4,524
	Southern „	295	493	1,659	2,447	367	678	3,492	3,661	1,743
	Total	574	1,847	2,602	5,023	376	1,522	6,921	5,573	6,267
Central Provinces	Northern Circle	302	8,926	1,995	11,223	222	1,441	12,886	393	1,728
	Southern „	38	11,195	1,111	12,344	136	981	13,461	58	4,337
	Total	340	20,121	3,106	23,567	358	2,422	26,347	451	6,065
Assam	.....	8	1,132	5	1,145	...	1,450	2,595	17	2,619
Coorg	.....	...	34	248	282	...	15	297	723	89
Ajmer	.....	...	19	235	254	...	158	412	...	177
Andamans	.....	...	...	42	42	16	91	149	...	...
Baluchistan	.....	2	63	238	303	...	77	380	...	...
Berar	.....	473½	918½	517	1,909	...	168	2,077	4,434	936
Total Bengal Presidency	.....	1,967½	31,290½	23,468	56,716	5,598	11,902	74,216	23,132	40,477
Madras Presidency	Northern Circle	988	1,313	4,957	7,258	959	542	8,759	10,154	2,667
	Central „	624	4,555	7,803	12,982	767	135	13,884	5,921	839
	Southern „	356	609	5,833	6,798	1,263	823	8,884	5,616	2,609
	Total	1,968	6,477	18,593	27,038	2,989	1,500	31,527	21,691	6,115
Bombay Presidency	Northern Circle	466	540	2,261	3,267	1,066	303	4,636	3,354	230
	Central „	559	696	15,704	16,959	5,631	861	23,451	3,899	3,225
	Southern „	242	27	446	715	11,732	626	13,073	3,845	84
	Sindh „	28	1,509	426	1,963	3	588	2,554	...	...
	Total	1,295	2,772	18,837	22,904	18,422	2,388	43,714	16,098	3,539
Grand Total, 1900-1901.	.....	5,221	40,539	60,898	106,658	27,009	15,790	149,457	60,921	50,131
Grand Total, 1899-1900.	.....	4,962	37,918	60,349	103,229	30,571	16,356	150,156	54,396	65,776

N.B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions, such as blocks, compartments and coupes.

The details of work in the different provinces are as follows :—

Bengal.—Twenty-five miles of new demarcation work, chiefly in the Jalpaiguri and Singhbhum Divisions. The total length of artificially demarcated boundaries at the close of the year was 3,397 miles, of which 3,217 miles were repaired during the year at a cost of R10,717.

North-Western Provinces and Oudh.—The work of the year is very clearly explained in the Local Government's Resolution :—

"Progress has been made in demarcating boundaries, a sum of R8,966 having been expended during the year. According to Form No. 48, accompanying the report, only 122 miles of boundary remain to be demarcated: 29 miles in the Central Circle, 25 in Oudh, and 68 in the School Circle. But paragraph 4 of the Oudh Conservator's report shows that in reality 155 miles remain to be artificially demarcated in that Circle, so that the correct total should be 252 miles. In the Naini Tal and Kumaun Divisions demarcation has been completed, stone slabs being substituted for wooden ones, and the necessary repairs being carried out. In Oudh the Kaerials boundary, a work of particular importance, has been laid down and is nearly completed. In the School Circle 68 miles of ditches remain to complete the boundaries of the Jaunsar Division, but the Conservator expresses a doubt whether the programme will be carried out, ditches being an unsuitable form of boundary in a hilly tract. In the district forests of Naini Tal and Almora demarcation is at a standstill, though some progress has been made in Garhwal. The Lieutenant-Governor and Chief Commissioner agrees with the Conservator that it is desirable that the work should be commenced, as a definition of boundaries is a necessary preliminary to the preservation of the forests."

Punjab.—Forty-three miles of boundary in the Kangra and Multan Divisions were demarcated during the year, while repairs took place over 1,215 miles, chiefly in the Rawalpindi, Montgomery and Multan Divisions. There still remain 3,762 miles of boundary requiring demarcation in the Kangra Division, while the demarcation in the Bashahr and Multan Divisions is not yet complete.

Burma.—Progress was good in all the four Circles.

The cost of new work varied from 6·8 rupees per mile in the Northern Circle to R53 per mile in the Tenasserim Circle.

In the Northern Circle, demarcation is almost completed, only 9 miles remaining to be done.

The figures compare favourably with those of the past year, and the Local Government remarks that, in future, demarcation should keep pace with the settlement of new reserves.

Central Provinces.—The Local Government's Resolution gives a resumé of the work done :—

"In the Southern Circle 38 miles of new boundaries were demarcated at a cost of R58, or 24·42 annas per mile. Satisfactory progress in demarcation has been made in the Northern Circle, where 302 miles of new boundaries were delineated at a cost of R393, or 20·8 annas per mile. This completes the work of demarcation in the Northern Circle, except for some 222 miles in the Hoshangabad Division, regarding which there appears to be some doubt."

In the Southern Circle, the only remaining work to be done is in the Balaghat and Chanda Divisions.

Repairs to boundaries were done very cheaply at an average cost of a little over 5 annas per mile.

Assam.—The Conservator gives the details of work done :—

"The total length of boundaries shown in Form No. 48 amounts to 2,595 miles, as compared with 2,612 miles last year. There was a reduction in the length of the artificial boundaries of 9 miles in the Goalpara Division and of 2 miles in the Sibsagar Division, due entirely to rectification of boundaries. A reduction of 10 miles in the natural boundaries and an addition of 3 miles to the artificial boundaries occurred in the Goalpara Division and was due to the alteration in boundaries caused by the first addition to the Bengtol reserve having been finally notified under section 17 of the Forest Law.

The length of boundary line repaired amounted to 1,132 miles out of a total length of 1,145 miles of artificial boundary, and this at a cost of R2,619, or R2-5 per mile, as compared with R2-4-6 last year. In addition to the sum of R2,764 actually disbursed on this work, free grants of forest produce, valued at R2,923, were made in the different divisions in return for labour on demarcation."

Coorg.—The boundary between the Ghât forests of Malabar and Coorg was repaired, new marks being erected where necessary. The expenditure of R723 shown on new work is not fully explained in the report, as no new work is shown as having been completed. It includes R60 spent on a boundary map.

Ajmer.—The following explains the work done on repairs :—

"During the year under report 59 pillars in Chang Forest were made of *pucka* masonry at a cost of R177. The remaining boundary pillars of the forest were white-washed and re-numbered. Rupees 21-10-6 were spent on repairs of *thor* fencing in Mohabir, Madar and Chang-gate bir tracts."

Andamans.—Nothing was done owing to scarcity of labour.

Baluchistan.—The boundary work was undertaken by the Forest Guards, and no expenditure incurred, the work being confined to the Ziarat range.

OF THE
BOMBAY
BRANCH
OF THE
ROYAL ASIATIC

Compiled under the supervision of Major P. J. Gordon, I.S.C., Superintendent, Forest Surveys, Bengal Presidency.

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No. 311-S. 02.

Berar.—Extensive changes in the State forests involved heavy expenditure on new boundary lines and pillars, and R5,370 were spent, against R686 during the previous year. Work was taken up as the re-settlement of area was completed, the re-demarcation in Akola and Buldana, which was nearly finished, costing R4,448. In the other divisions R295 were spent on new demarcation (including the new Pardi reserve in Wun and Palodi in Basim), and R627 on maintenance. The demarcation of all forests is satisfa.tory.

Madras.—Good progress was made during the year, especially in the Northern Circle, the 1,968 miles of new work costing R11 per mile, while repairs cost nearly R1 per mile, the rates being the highest in the Southern Circle. Many repairs were done by the establishment free of cost. Nearly 3,000 miles of boundary remained to be demarcated at the close of the year, which at the present rate of progress should be completed within two years.

Bombay.—Marked progress was reported in all the Circles, especially in the Satara Division of the Central Circle. The cost of new work averaged R12·4 per mile, being lowest in the Central Circle. The demarcation in the Sindh Circle cost nothing, being all done by free labour.

Eighteen thousand four hundred and twenty-two miles remain to be completed, principally in the Southern Circle. The cost of repairs varied from 7 annas per mile in the Northern Circle to R4-10 in the Central Circle.

IV.—Surveys.

Good progress continued to be made in Forest Surveys during the year, and it seems probable that the ten years programme sanctioned for the Forest Surveys, Bengal Presidency, by the Government of India in 1898, will, except as regards Burma, be completed earlier than was anticipated. Detachments of the Forest Surveys, Bengal Presidency, were employed in the Central Provinces, Bengal, and in the Punjab, while No. 20 Party, likewise under the Superintendent of Forest Surveys, continued its work in Burma in all Circles.

Survey Parties of the Survey of India continued their operations in Bombay, Madras and the Punjab.

Minor survey work outside the authorized programme was, as usual, done by the local Forest Officers.

Revised orders for the adjustment of expenditure on forest surveys were issued by the Government of India, by which it is provided that the cost of all surveys in the Bengal Presidency on the scale of not less than 4″ to the mile, shall in future be uniformly distributed in the proportion of 30 per cent. to Topographical surveys, in consideration of the topographical value of the work, and of 70 per cent. to Forests.

Proposals to apply the same rule to Bombay and Madras and to bring all forest surveys in India under one administrative officer are under consideration.

The following statement exhibits, in a convenient form, the outturn and cost-rates of detail survey for the year under report, as well as for the previous year. The cost-rates include mapping and, except in the case of Madras and Bombay, publishing charges, but not the cost of preliminary traversing and triangulation, which, however, is included in the total expenditure :—

For 1900-1901.

Presidency or Province.	4″ = 1 MILE.				8″ = 1 MILE.				16″ = 1 MILE.				TOTAL DETAIL SURVEYS ON 4″ SCALE AND OVER.			EXPENDITURE ON SURVEYS.	
	1900-1901.		1899-1900.		1900-1901.		1899-1900.		1900-1901.		1899-1900.						
	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	1900-1901.	1899-1900.	Total up to date (4).	1900-1901 (7).	1899-1900.
	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	Sq. M.	Sq. M.	R	R
Bengal	361	61	185	81	...	...	...	...	...	...	...	...	361	185	1,463	26,547	18,413
N.-W. P. and Oudh	...	...	...	...	...	...	...	...	...	...	...	...	(5)		3,737	(5) 836	4,222
Punjab (1)	43	47	31	52	...	...	...	...	...	...	...	...	43	31	3,889	(6) 5,626	21,017
	50	88	108	60	...	...	...	...	...	...	...	...	50	108		4,983	33,891
Burma	873	98	708	98	...	...	...	...	...	...	...	...	873	708	7,514	1 77,524	1,70,041
Central Provinces	1,556	37	1,423	45	...	...	...	...	(2) 1,691	(3) 2	(2) 2,597	(3) 1·5	1,556	1,423	15,393	77,602	82,909
Assam	...	...	...	...	...	...	...	...	...	...	...	...	...	...	522	...	...
Berar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	75	...	...
Totals for Bengal Presidency	2,883	68	2,455	67	...	...	...	...	1,691	2	2,597	1·5	2,883	2,455	32,139	2,93,118	3,33,293
Madras (1)	1,377	58	1,524	53	...	...	...	...	...	...	...	...	1,377	1,524	8,290	93,335	1,09,180
Bombay (1)	409	65	379	64	255	106	236	140	11	113	55	134	675	670	7,951	62,250	72,571
Total for Madras and Bombay	1,786	62	1,903	61	255	106	236	110	11	113	55	134	2,052	2,194	17,241	1,55,585	1,81,751
GRAND TOTAL	4,669	65	4,353	64	255	106	236	140	1,702	57	2,652	68	4,935	4,649	49,380	4,48,803	5,14,954

(1) Survey of India Department, other figures are for Forest Surveys.
(2) Linear miles not included in totals.
(3) Cost-rate per linear mile.
(4) Final forest areas for which there are surveys on 4″ scale and over, all small scale surveys, boundary surveys and all surveys which have been superseded by others, are omitted from these totals.
(5) Jubal and Taroth surveys.
(6) Includes R2,021 for Jubal and Taroch surveys.
(7) The expenditure is for the period from 1st October 1900 to 30th September 1901.
(8) Mapping and publishing charges only.
Note.—The 4″ surveys in the Bengal Presidency include the usual record of forest-growth.

The results may be considered satisfactory. Although the total expenditure on surveys was considerably less than for the previous year, there was an improvement of nearly 300 square miles in the outturn.

It is satisfactory to note that the cost-rates of all classes of survey work show an improvement generally on those of former years. It is necessary, however, in all cases to consider these rates with reference to special local conditions. In some cases the rates have now reached the minimum compatible with good work.

Good progress has been made in mapping and publishing. In addition to the 4″ sheets in connection with surveys in progress, working-plans and other special maps have been prepared as required. A series of maps of Forest Divisions, on the scale of 4 miles to the inch, is also under preparation.

Details of survey work in the different provinces are as follows : —

Bengal.—Two detachments of the Forest Surveys continued the survey of the Reserved Forests in Singhbhum, which was commenced in 1899. Owing chiefly to its having been possible to employ a larger establishment, the outturn was nearly doubled, and the cost-rates reduced by 20 per cent. It was decided to postpone the publication of the sheets, so as to be able to include protected forests on them, but tracings were supplied, as required, for working-plan purposes.

No surveys of any importance by local agency are reported.

North-Western Provinces and Oudh.—Practically no survey work was carried out during the year. In the Oudh Circle the survey of the lately erected permanent pillars has been deferred owing to the final demarcations being incomplete. The publication of maps in this Circle has also been delayed for the same reason.

Three surveyors were lent to the Working-plans officer in Kheri to assist him in running lines of levels.

Punjab.—The triangulation of the Reserves in the Khagan and Siran ranges of Hazara, in preparation for the 4″ detail survey which has now been sanctioned, was completed.

The survey of the State forests of Jubal and Taroch was commenced, and an area of 43 square miles was surveyed on the scale of 4″ to 1 mile.

The publication of the 4″ sheets of Bashahr is now complete, and that of Chamba in progress.

No. 18 Party of the Survey of India surveyed 50 square miles of forest on the 4″ scale in Kangra, Kulu, and Hoshiarpur. The bulk of the work lay in the hilly country of Kulu, which accounts for the increase in the cost-rates. In addition to the 4″ surveys, an area of 390 square miles of rocky and waste lands were surveyed in Kangra and Kulu on smaller scales.

Burma.—In the Pegu Circle an area of 219 square miles was surveyed in the Pegu, Rangoon and Thayetmyo Divisions. The survey of the coast reserves of Yetkangyi was completed, and when the area of this reserve is finally worked out, it will be found that a considerable increase to the gazetted area has resulted from the silting up of the Gulf of Martaban.

In the Tenasserim Circle an area of 292 square miles was surveyed on the 4″ scale in West Salween and South Tenasserim.

In the Northern Circle an area of 300 square miles was triangulated in the Upper and Lower Chindwin and Myitkha Divisions, of which area 67 square miles were also traversed in preparation for the detail survey which it is proposed to commence next season.

In the Southern Circle an area of 44 square miles was surveyed in the Pyinmana Division. In the Ruby Mines division 318 square miles were surveyed, and it is hoped that maps will be ready in 1902 for the working-plans which are to be taken up. One hundred and sixty-six linear miles of the Taungdwingyi block in the Minbu Division were also traversed, and the detail survey of this block will be taken up in the field season of 1901-02.

The average cost-rates for Burma are much the same as those of last year, and but for the expense and loss of time incurred owing to a change in the programme, they would have shown an improvement. The rates varied from R79 per square mile of detail survey in the Ruby Mines to R152 in Thayetmyo. The favourable rates in the former division are due to the large outturn. The rates for traverse survey varied from R34 per linear mile in the Ruby Mines Division to R90 in Attaran, where progress was slow owing to the dense forest growth.

For the next few years the general policy with regard to forest surveys in Burma will be to confine operations principally to the Northern Circle, where so far no surveys exist, and to the Southern Circle. In the Tenasserim Circle, where surveys are already considerably in advance of working-plans, all work will be stopped, while in the Pegu Circle it is proposed only to survey a small area each year on the Eastern slopes of the Arracan Yomas for some years to come.

In addition to the work done by Forest Surveys, a considerable amount of boundary survey was done by Forest Officers in the Northern and Southern Circles.

Central Provinces.—In the Northern Circle three detachments surveyed 774 square miles in Mandla on the 4″ scale in continuation of the work reported last season, while in the Southern Circle two detachments surveyed 776 square miles in Chanda. A 16″ survey of the exterior boundaries of Reserves was made, as usual, for their more effective comparison with settlement maps. With the exception of these two divisions, the field surveys in the Central Provinces are now complete. It is expected that the survey of the Northern Circle will be completed in 1902 and that of the Southern Circle in 1903.

The cost-rates were R46 per square mile in Mandla and R28 in the more open and less hilly forests of Chanda. The average cost-rate of the year for the Central Provinces for 4″ detail survey was R37 per square mile, which compares favourably with that of former years. The rates for traversing, triangulation and levelling also show improvement.

The mapping and publication of the 4″ sheets has made good progress. One hundred and fifty-six sheets were sent to press during the year and 62 were published.

Assam.—No surveys of any importance were reported. Arrangements have, however, been made to commence a 4″ detail survey of the Nowgong, Garo Hills, and Kamrup Reserves during the field season of 1902-03.

Ajmer.—An area of 40 square miles was surveyed, under the local Forest Officer, by a surveyor lent for the purpose by the Superintendent, Forest Surveys. The mapping is in progress, but so far no maps have been published.

Coorg
Baluchistan
Andamans
} No surveys were reported.

Berar.—No field surveys were done during the year. The issue of the forest maps of the 22 taluks in Berar is now complete, and the maps have been adopted for general administrative use, as well as for forest purposes.

Madras.—Nos. 9 and 19 Parties of the Survey of India, under one Executive Officer, continued 4″ detail survey in all Circles. The outturn of 4″ detail survey was as follows :—

	Square miles.
Northern Circle	398
Central „	551
Southern „	428
	1,377

The area surveyed was 147 square miles less than that for the previous year. The decrease is attributed to sickness, bad weather, and to a smaller staff of surveyors having been employed. It appears probable, however, that the outturn for the year under report fully represents the maximum area which can be dealt with in the recess. The total cost of surveys was R93,385, which includes a contribution of R34,224, or 36¾ per cent., made by the Government of India on account of the topographical value of the work. The total amount was R15,845 less than that for 1899-1900. This decrease is not explained, but is probably due principally to savings under the head of supervision, as well as to a smaller establishment having been employed. The cost-rate of detail survey was the same as for the previous year, *viz.* R58 per square mile.

Some minor surveys in connection with Forest Settlements and disputed boundaries were made under Forest Officers.

Bombay.—No. 17 Party, Survey of India, continued its operations in the Northern, Central and Southern Circles.

The outturn of detail survey was as follows :—

	4″	8″	16″	
Northern Circle	—	68	—	square miles.
Central „	31	181	11	„
Southern „	378	6	—	„
	409	255	11	
		675		

The 16″ surveys of babul reserves have now been limited to those situated below flood-level. The survey of South Kanara, to which the Government of India contributed R10,000 annually, was completed during the year. The outturn was practically the same as for last season, and the total expenditure was reduced from R72,571 to R62,350. This reduction was principally due to a temporary saving in the cost of supervision, which will not be maintained in the future. But for this saving the cost-rates, which in the case of 4″ surveys are practically the same as those for 1899-1900, and in the case of 8″ and 16″ surveys are considerably less, would have been less favourable.

V.—Working-Plans.

The following tables show the progress made in working-plans :—

(A)

Areas brought under the control of sanctioned Working-Plans up to 30th June 1901 in the Provinces of the Bengal Presidency.

Province.	Forest Area, in square miles.				Area for which working-plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned working-plans.
	Reserved.	Protected.	Unclassed State.	Total.		
1	2	3	4	5	6	7
					Square Miles.	Per cent.
Bengal	5,881	3,656	4,033	13,570	4,460	33
North-Western Provinces and Oudh	4,050	30	43	4,123	3,454	84
Punjab	2,897	4,888	1,969	9,754	2,720	20
Burma (Lower)	9,097	...	41,649	50,746	1,761	3·5
Burma (Upper)	8,740	...	39,913	48,653	322	0·7
Central Provinces	18,881	...	138	19,019	8,337	44
Assam	3,609	...	17,239	20,848	533	2·6
Berar	3,953	...	...	3,953	725	18·3
Coorg	238	663	...	901	178	20
Baluchistan	203	...	...	203	...	...
Andamans	156	...	1,795	1,951	...	...
Ajmer	139	...	10	149	139	92·3
Total 1900-01	57,844	9,237	106,789	173,870	22,679*	13
„ 1899-1900	57,413	6,839	98,614	162,866	21,601	13·2

N. B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement.

* At the beginning of the year this figure stood at 31,501, which was reduced by 213 square miles owing to transfers, etc., during 1900-1901, leaving 31,288 square miles, which added to 1,391 square miles as newly sanctioned areas = 22,679 square miles—see Table (C).

(B)

Progress made in Working-Plans in the Provinces of the Bengal Presidency during 1900-1901.

Province.	Preliminary proposals submitted to the Inspector-General of Forests for working-plans.		Completed plans submitted for opinion and remarks of Inspector-General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector-General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
		Square miles.		Square miles.		Square miles.
Bengal	...	...	...	...	...	...
North-Western Provinces and Oudh.—Central Circle	...	...	1	4	1	4
North-Western Provinces and Oudh.—Oudh „	1	59	...	...	...	...
North-Western Provinces and Oudh.—School „	1	278(a)	...	...	...	...
Punjab	3	90(b)	2	275(c)	1	76
Burma (Lower).—Pegu Circle	...	...	...	...	...	...
Burma (Lower).—Tenasserim Circle	...	...	...	...	...	...
Burma (Upper).—Northern „	...	...	...	...	...	...
Burma (Upper).—Southern „	4	510	1	127	1	206
Central Provinces.—Northern „	2	2,148	2	1,969	1	520
Central Provinces.—Southern „	...	...	3	616	1	585
Assam	...	...	...	...	...	...
Berar	...	...	...	...	...	...
Coorg	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...
Andamans	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...
Total 1900-1901	11	3,085	9	2,991	5	1,391
„ 1899-1900	8	3,902	10	2,358	9	1,422

(a) Old area of the Dehra Dun Working-Plan under revision.
(b) Includes 13 square miles of the Kothkai and Kotgarh Working-Plan under revision.
(c) Includes 109 square miles of the Murree-Kahuta Working-Plan under revision. The area of Jubal Forest has been Estimated at 98 square miles.

(C)

Comparative statement of progress made in Working-plans during 1900-1901.

Province.		Areas for which working-plans have been completed and sanctioned. At commencement of the year.	Areas for which working-plans have been completed and sanctioned. During the year.	Areas for which working-plans are being compiled. At commencement of the year.	Areas for which working-plans are being compiled. Taken in hand during the year.	Areas for which working-plans have still to be taken in hand.	Total forest area as in Form No. 46.	Remarks.
1		2	3	4	5	6	7	8
		Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	
Bengal		(a)4,460	...	841	...	8,269	13,570	(a) At the commencement of the year the area was 4,479 square miles, of which 19 square miles have been made over to the Civil Department for cultivation.
North-Western Provinces and Oudh.	Central Circle	(b)1,551	4	...	...	(c)374	1,929	
	Oudh "	(d)1,107	...	(e)197	...	8	1,312	(b) Includes 40 square miles for working-plans for Cantonment and Municipal forests not under the Forest Department (Naini Tāl Cantonment 1; Naini Tāl Municipal 2; Banikhet Cantonment 7).
	School "	792	...	77	...	13	882	
Punjab		(f)2,644	76	1,329	...	(g)5,705	9,754	(c) This should really be 384, because working-plans for 10 square miles referred to in (b) are not included in column 7.
Burma (Lower)	Pegu Circle	1,023	...	...	...	15,507	16,530	
	Tenasserim Circle	738	...	419	...	33,029	34,216	(d) Includes 78 square miles of open forests for which a separate plan is under preparation, and 2 square miles were added during the year by reservation in Bhitga.
Burma (Upper)	Northern Circle	37	...	...	...	19,744	19,781	
	Southern "	(h)79	(i)206	275	242	28,070	28,872	(e) Excludes 78 square miles referred to in (d).
Central Provinces.	Northern Circle	(m)1,306	520	5,994	...	(j)1,678	9,498	(f) The area last year was 2,634 square miles, the increase of 12 square miles being due to correction of area in the Murree-Kahuta forests; 6 square miles being the area of the Simla Municipal and Catchment area forests, are also included in column (2), but not in column (7).
	Southern "	(k)5,976	585	1,001	...	(l)1,959	9,521	
Assam		533	...	...	...	20,315	20,848	(g) This should really be 5,711; it has been reduced by 6 square miles to agree with column 7, see (f).
Berar		725	...	...	...	3,228	3,953	
Coorg		178	...	22	...	700	901	(h) Five square miles of unclassed forest are nominally included in the working-plan or the Yeni reserve.
Baluchistan		...	...	...	...	303	203	
Andamans		...	...	...	...	1,951	1,951	(i) Ten square miles of village lands are included in the working-plan for the Minbyin reserve and deducted from column 6.
Ajmer		139	...	...	...	10	149	
Total Bengal Presidency 1900-01		(n)21,288	1,391	10,185	242	140,764	173,870	(j) Marked out for disforestation; require no working-plans.
" " 1899-1900		20,163	1,338	10,847	856	129,622	162,866	(k) Reduced by 21 square miles owing to transfer and disforestment.
Madras Presidency.*	Northern Circle	72	158	1,022	385	5,179	6,816	(l) No working-plans are required for 1,566 square miles, as most of the area is in B.-I. class.
	Central "	117	252	668	518	5,716	7,271	(m) According to last year's statement this should be 1,493, but during 1900-1901 187 square miles were transferred to B.-I. class.
	Southern "	169	248	66	158	4,813	5,454	(n) Last year this figure stood at 21,501 square miles, the decrease of 213 square miles being due to transfers, etc., during 1900-1901—see (a), (d), (f), (k), and (m.)
Total 1900-01		358	658	1,756	1,061	15,708	19,541	
" 1899-1900		139	219	1,410	768	17,113	19,649	(o) Includes 679 square miles of leased forests in the Dangs.
Bombay Presidency.*	Northern Circle	638	...	...	631	(o)1,058	2,327	
	Southern "	681	59	520	112	3,926	5,298	
	Central "	...	404	3,856	...	2,000	6,260	
	Sindh "	...	...	613	150	310	1,073	
Total 1900-01		1,319	463	4,989	893	7,294	14,958	
" 1899-1900		1,318	16	5,146	892	7,574	14,946	

* *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

Details of work in the various Provinces are shown below :—

Bengal.—No working-plans were completed although progress was made in the preparation of plans for the Singhbhum and Puri forests, covering an area of 841 square miles. A programme of working-plans for the next five years was drawn up. The total area of forests for which no plans exist is 8,269 square miles.

North-Western Provinces and Oudh.—In the Central Circle the Working-plan for the Muktesar forest of 4 square miles in the Naini Tál Division was finally sanctioned by the Local Government. The area of 374 square miles not under working-plans includes the Bundelkhand Division, 269 square miles, and 46 square miles in the Naini Tál Division.

In the Oudh Circle preliminary proposals were approved for the Surai-Banbasa forests of the Pilibhit Division. In the Kheri Division the revision of the Working-plan for the Trans-Sarda forests was nearly completed and the Tulsipur Working-plan in the Gonda Division was printed but not submitted by the close of the year. In the School Circle Working-plans for the Dehra Dun Division and the Jaunsar Division were in course of preparation, the preliminary proposals for the former having been submitted to the Inspector-General during the year.

Punjab.—Preliminary proposals for the three Working-plans of Pangi (Chamba Division), Kotkhai-Kotguru (Simla Division) and Pabar (Bashahr Division) were submitted during the year. The Working-plan for the Kagan forests of Hazara, 76 square miles, was finally sanctioned by the Local Government. Working-plans were in course of preparation for part of the Hazara, Kangra, Bashahr and Montgomery Divisions.

Burma.—The progress made is described in the Local Government's Resolution :—

"No working-plans party was available in either the *Pegu* or the *Northern* Circle. Out of the 4,727 square miles of reserved forest in the *Pegu* Circle, 3,704 square miles remain without working-plans. One party carried on work over an area of 449 square miles of the Pyukun and Pyuchaung reserves in the *Tenasserim* Circle. There is a balance of 3,192 square miles out of 4,369 in this Circle, for which working-plans have not been taken in hand. The *Northern* Circle has 4,410 square miles of reserved forest, and in this area working-plans have only been prepared for 37 square miles. In the *Southern* Circle a plan of 196 square miles of teak forest to be worked on the selection system was sanctioned by Government during the year. Working-plans for 517 square miles were under preparation. Of these, a plan for 127 square miles was completed during the year and awaits the approval of the Inspector-General of Forests, while another plan for 193 square miles was completed and was in the Press at the end of the year of report. Plans for 3,543 square miles have yet to be prepared. Preliminary plans for teak exploitation have been drawn up for 334 square miles in the Southern Shan States.

The total balance of 14,802 square miles of reserved forests, for which working-plans have not been begun, will take many years to complete. The Lieutenant-Governor has under consideration proposals which will enable him to add to the number of working-plans parties available in each year, and it is hoped that progress will thus be greatly accelerated."

Central Provinces.—In the Northern Circle preliminary proposals were submitted for the Nimar and Saugor forests, and a Working-plan sanctioned for the Jubbulpore Division.

In the Southern Circle the Working-plan for the Wairagarh, Ghote and Dhaba forests of the Chanda Division was finally sanctioned. Although no new areas were taken in hand during the year, working-plans are in course of compilation over 6,995 square miles in the two Circles.

In these provinces the prescriptions of many of the plans remained a dead letter owing to the want of demand.

Assam.—The only areas under working-plans are the Goalpara Division, 522 square miles, and 11 square miles of the Garo Hills Division. No progress was made during the year.

Coorg.—Nothing was done.

Ajmer.—No progress was made.

Baluchistan.—Nothing is reported to be necessary at the present time.

Andamans.—No progress was made in the collection of data for a working-plan.

Berar.—Working in all divisions is regulated by provisional plans. Progress in making permanent plans has been barred by impending changes in area. The importance of systematic working has, however, not been lost sight of, and a proposal to start a Working-plans office was sanctioned.

Madras.—Very considerable progress was made in all the three Circles, working-plans for 658 square miles having been sanctioned during the year, and plans being in course of compilation over 1,061 square miles. To each Circle was attached a special Working-plans Division.

Bombay.—Working-plans over 463 square miles in the Southern and Central Circles were sanctioned during the year, while areas aggregating 893 square miles were taken in hand, of which 631 square miles were in the Northern Circle.

Orders have been issued by the Local Government directing the submission of all working-plans or modification of plans through the Senior Conservator, with a view to secure uniformity and to provide the Government with expert advice on technical points.

VI.—Communications and Buildings.

The total expenditure on communications and bridges amounted to ₹1,60,000 as against ₹1,50,000 in the preceding year. In the Bengal Presidency, new work showed an increase of ₹8,300, owing chiefly to the new roads constructed in Burma. The amount expended under repairs also increased by ₹6,000, Burma again being chiefly responsible.

In the Madras Presidency, expenditure on new work decreased by ₹5,000, which, however, was counterbalanced by the increase under repairs.

In the Bombay Presidency, the expenditure both on new work and repairs was considerably lower than in the previous year.

The expenditure incurred on buildings decreased by ₹21,000, the figures being ₹2,71,000 as against ₹2,92,000 in the previous year.

In the Bengal Presidency, the total decrease was ₹20,000, new buildings costing ₹28,000 less, while repairs cost nearly ₹8,000 more.

The principal decreases were in the Punjab and in Burma (where, in the previous year, the expenditure had been abnormal, owing to the construction of the Forest School at Tharrawaddy), while the principal increase was in Assam.

In the Madras Presidency, there was a slight decrease in expenditure, while in the Bombay Presidency the figures remained much as in the previous year. In the latter Presidency considerable progress was made in satisfactorily housing the subordinate establishment.

The following statement shows the expenditure in the various Provinces :—

Province.	New Work.		Repairs.		Other Works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	₹	₹	₹	₹	₹	₹
Bengal	17,33[illegible]	11,901	12,462	7,584	1,543	50,826
North-Western Provinces and Oudh	31,186	12,084	16,135	33,700	6,246	99,251
Punjab	14,447	6,358	5,617	3,613	5,646	35,681
Burma	54,001	14,950	15,769	4,685	6,166	95,571
Central Provinces	8,672	267	7,876	2,912	1,355	21,082
Assam	8,493	1,370	9,467	4,995	1,345	25,670
Coorg	528	510	727	1,242	814	3,821
Ajmer	1,214	...	63	53	150	1,480
Baluchistan	...	...	104	...	1	105
Andamans	1,165	1,824	456	1,051	...	4,496
Berar	4,684	675	5,643	5,499	811	17,312
Total Bengal Presidency	1,41,726	49,939	74,319	65,234	24,077	3,55,295
„ Madras Presidency	21,357	13,616	21,020	18,867	6,960	81,820
„ Bombay „	6,111	6,510	6,552	5,898	2,173	27,244
GRAND TOTAL—1900-01	1,69,194	70,065	1,01,891	89,999	33,210	4,64,359
„ 1899-1900	1,98,367	69,465	93,868	80,600	47,498	4,89,798

Details of the work done in each Province are shown below :—

Bengal.—The total length of roads constructed was 56 miles, while 883 miles were repaired, most of the new work being carried out in the Darjeeling and Singhbhum Divisions. A wire rope-way, 1,222 feet long, was erected in the Darjeeling Division, costing ₹884, to facilitate the export of produce, while a second rope-way was nearly completed at a cost of ₹869.

Rupees 4,572 and R2,670 were spent on the Jalpaiguri and Chaibassa head-quarters houses during the year; these, however, have not yet reached completion.

Seven inspection bungalows were either completed or approaching completion at the close of the year, while Rangers' houses were completed at Rimbeck in the Darjeeling Division and at Durgapur in the Angul Division, and repairs extensively carried out where required.

The total expenditure on roads and buildings was R19,485 and R29,793 against R22,258 and R28,156 in the previous year.

North-Western Provinces and Oudh.—One hundred and thirty-nine miles of new roads and paths were constructed and 3,815 miles kept in repair. The Central Circle as usual headed the expenditure with R26,000, where the Kalaunia valley road, seven miles long, in the Kumaun Division, was completed at a cost of about R400 per mile and the cart-road between the Ranikhet cantonment and the reserved forest partly completed at a cost of R4,000. In the Oudh and School Circles, respectively, 39 and 44 miles of new roads and paths were prepared at a cost of R3,837, while 1,850 miles were repaired at a cost of R15,389.

New buildings in the Central Circle cost R18,617, while repairs were undertaken to the extent of R4,978. A head-quarters house was purchased at Jhansi for the Bundelkhand Division at a cost of R6,000, while six inspection houses were completed or partly completed in the other divisions.

In the Oudh Circle the largest expenditure on new work was in the Gorakhpur Division, where seven forest guards' chaukis were completed.

In the School Circle R7,891 were spent on new buildings, of which the sum of R5,959 was expended in the Jaunsar Division, chiefly on additions to the head-quarters bungalow and on part construction of two inspection houses.

The total expenditure on roads and buildings in these provinces compares with that of the previous year as follows:—

	Roads.	Buildings.
	R	R
1899-1900	44,043	50,730
1900-1901	46,684	47,321

Punjab.—One hundred and forty-five miles of roads and paths were constructed at a cost of R4,186, chiefly in the Montgomery, Kulu and Bashahr Divisions, while 504 miles of repairs cost R2,846. The principal new buildings erected or in course of erection were inspection houses in the Rawalpindi, Kangra and Bashahr Divisions, while extensive repairs to the head-quarters office and out-houses at Lahore were carried out, and good progress was made in building suitable houses for the subordinate establishment all through the Circle.

The expenditure on roads and buildings compares with that of the previous year as follows:—

	Roads.	Buildings.
	R	R
1899-1900	7,214	36,746
1900-1901	9,971	20,064

Burma.—In the Pegu Circle the chief work done under Communications was the blasting of rocks to facilitate export by water in the Prome, Tharrawaddy and Henzada Divisions. In the Toungoo Division of the Tenasserim Circle R2,426 were spent on improving the course of streams, while a fair-weather road was made in the South Tenasserim Division at a cost of R250.

In the Northern Circle 48 miles of cart-road were made in the Upper Chindwin and Myittha Divisions at a cost of R3,681: no road-work of any importance was carried out in the Southern Circle.

Under buildings in the Pegu Circle a head-quarters bungalow was erected at Henzada at a cost of R4,132, eight inspection bungalows in various divisions cost R5,532, while on one Ranger's and three Forest Guards' quarters an expenditure of R3,050 was incurred. In addition, quarters for the Assistant Instructor were erected by the Public Works Department at the Tharrawaddy School.

In the Tenasserim Circle three quarters for subordinates were built, the Forest Office at Mergui was nearly completed, while three inspection houses were built in the South Tenasserim Division.

In the the Northern Circle the Forest Office at Kindat was completed at a cost of R4,741, and 12 inspection houses were built in various divisions. Two Rangers' head-quarters were also completed.

In the Southern Circle R11,661 were spent on buildings, including R8,000 for the purchase of a house for the Divisional Officer at Pyinmana and R2,000 for Clerks' quarters at Maymyo.

The total expenditure on communications and buildings compares with that of the former year as follows :—

	Roads.	Buildings.
	R	R
1899-1900	6,264	83,053
1900-1901	19,635	69,770

Central Provinces.—In the Southern Circle R215 were expended on 30 miles of new cart-road, while R2,633 were spent on the repairs of 1,127 miles of roads and paths. In the Northern Circle no work of any importance took place.

Under buildings in the Southern Circle, the construction of a rest-house in the Sambalpur Division was proceeded with and good progress made in putting up suitable quarters for subordinates.

In the Northern Circle R3,331 were expended principally on houses for subordinates, while repairs, which were extensively carried out, cost R3,052.

The expenditure of the last two years is shown as follows :—

	Roads.	Buildings.
	R	R
1899-1900	3,679	11,925
1900-1901	3,179	16,584

Assam.—Rupees 1,370 were expended on new roads, chiefly in the Darrang Division, where compartment roads were cleared in the Charduar Rubber Plantation. In the Goalpara Division timber bridges were put up on the Gangia cart-road. Of the R4,995 spent on repairs, R2,500 were paid for repairing a cart-road in the Garo Hills Division for the extraction of timber. Under buildings two new head-quarters offices—one at Dibrugarh and one at Gauhati—cost R5,877, while a rest-house was constructed at Patgaon in the Goalpara Division, and accommodation was provided for subordinates in various localities.

Repairs were extensively carried out all over the Circle.

The expenditure of the last two years was as follows :—

	Roads.	Buildings.
	R	R
1899-1900	6,249	11,502
1900-1901	6,365	17,960

Coorg.—Thirteen miles of new paths were cleared in the Ghât forests, while 113 miles of roads and paths were kept in repair.

As regards buildings new work consisted in additions and improvements to existing houses.

The expenditure of the past two years was as below :—

	Roads.	Buildings.
	R	R
1899-1900	1,515	3,588
1900-1901	1,752	1,255

Ajmer.—No new road work was undertaken, existing roads and paths being repaired where necessary. Under buildings the range quarters at Raoli was completed at a cost of R1,159. The expenditure of the past two years was as below :—

	Roads.	Buildings.
	R	R
1899-1900	387	404
1900-1901	53	1,277

Baluchistan.—The only work of the year consisted of petty repairs to subordinates quarters.

The following shows the expenditure of the past two years :—

	Roads.	Buildings.
	R	R
1899-1900	...	137
1900-1901	...	104

Andamans.—The alignment of the Wimberlyganj tramway was completed for a distance of 5¾ miles and the Bajajag tramway was lifted and relaid for 4 miles, while a tram line was laid for ½ a mile for the extraction of firewood. Repairs to 8½ miles of tramway cost ₹1,051. Under buildings seven new barracks were erected, while quarters were provided in various localities for subordinates, etc. Repairs to convict barracks cost ₹420.

The following are the figures of the past two years :—

	Roads.	Buildings.
	₹	₹
1899-1900	1,961	2,303
1900-1901	2,875	1,621

Berar.—Eight miles of new cart-road and three miles of bridle-path were constructed at a cost of ₹675, while repairs to existing roads cost ₹5,499. Buildings included new rest-houses at Rahu (Ellichpur, ₹1,286) and Mehadari (Amraoti, ₹930), the remaining expenditure being additions to existing houses at Ambaḥarwa in Akola and Korat in Basim.

The erection (for ₹2,161) of 15 quarters for subordinates was a feature of the year.

The wells in all the divisions were cleaned out and repaired. The cost of the work of the last two years is as follows :—

	Roads.	Buildings.
	₹	₹
1899-1900	7,248	7,568
1900-1901	6,174	10,327

Madras.—In the Northern Circle ₹5,233 were spent on 49 miles of new road work, chiefly in the Kistna Division, while 92 miles were repaired at a cost of ₹2,574.

In the Central Circle 16 miles of cart-road were made in the North Arcot Division at a cost of ₹4,788, while 4 miles of bridle-path in the Salem Division cost ₹1,521. One hundred and thirty-nine miles of road all over the Circle were repaired at a cost of ₹3,672.

In the Southern Circle 51 miles of cart-road, chiefly in the North Coimbatore Division, were constructed at a cost of ₹1,016, while 306 miles of cart-road were repaired at a cost of ₹11,545, the greater part being in the North Malabar, Nilgiris, Coimbatore and Tinnevelly Divisions.

Under buildings the most important works undertaken were rest-houses in the Kurnool and Anantapur Divisions in the Northern Circle, in the North Arcot and Salem Divisions in the Central Circle, and in the Madura and Tinneveliy Divisions in the Southern Circle. Good progress was made in the erection of quarters for subordinates.

The figures of the past two years compare as follows :—

	Roads.	Buildings.
	₹	₹
1899-1900	33,229	47,931
1900-1901	32,483	42,377

Bombay.—In the Northern Circle the Swata creek was deepened in the North Thana Division at a cost of ₹408 and 9 miles of new road were constructed at a cost of ₹218 in the Surat Division, where also 215 miles of road were kept in repair at a cost of ₹795.

In the Central Circle no new road work was done, 55 miles of old road being kept in repair at a cost of ₹157.

In the Southern Circle 9 miles of road were constructed at a cost of ₹5,879, of which 4 miles in the North Kanara Division cost of ₹4,697.

Eighty-seven miles of road in all the divisions were repaired at a cost of ₹4,618.

Under buildings ₹1,608 were expended in the Northern Circle, chiefly on construction of a range office in the Surat Division and extension of the head office in the Panch Mahals Division.

In the Central Circle a bungalow was improved in the East Khandesh Division at a cost of ₹141, and a range office was partly constructed in the Poona Division at a cost of ₹154.

The expenditure on new work in the Southern Circle was ₹4,020, almost entirely incurred on erecting suitable houses for the subordinate establishment.

Extensive repairs, costing ₹4,132, were carried out all over this Circle.

The expenditure of the past two years compares as follows :—

	Roads.	Buildings.
	₹	₹
1899-1900	16,023	12,298
1900-1901	12,408	12,663

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

The total number of cases disposed of by the Courts increased from 10,569 to 11,270, the Madras Presidency being responsible for the increase. The percentage of convictions rose from 85 per cent. to 86·7 per cent., the figures being satisfactory in all the provinces with the exception of Coorg.

The number of cases compounded rose from 31,603 to 32,803, the largest increases being in the Punjab, Bengal, and Madras.

The number of cases disposed of by the Courts and compounded in the different provinces are compared with the previous year's figures in the following table :—

Province.	Number of cases disposed of by the Courts.		Number of cases Compounded.		Total.		Proportion of convictions to the total number of cases decided by the Courts.	
	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.
							Per cent.	Per cent.
Bengal	309	343	2,454	1,946	2,763	2,289	86·4	87·7
North-Western Provinces and Oudh	128	159	474	483	602	642	84·4	89·4
Punjab	1,370	1,336	3,264	2,564	4,634	3,899	79·8	83·5
Burma	664	663	1,706	1,485	2,370	2,148	79·8	76·9
Central Provinces	208	237	3,519	3,597	3,727	3,834	78·4	78·2
Assam	115	109	233	246	348	355	83·4	82·6
Coorg	18	28	56	59	74	87	55·5	67·8
Ajmer	311	355	227	454	538	809	97·1	92·1
Baluchistan	54	80	91	223	145	303	74·0	81·2
Andamans	2	2	...	...	2	1	100	100
Total	3,279	3,330	12,024	11,057	15,203	14,387	82·1	82·7
Berar	118	142	606	960	724	1,102	81·3	76·8
Total Bengal Presidency	3,297	3,472	12,630	12,017	15,927	15,489	82·1	82·5
„ Madras „	6,324	5,295	12,103	11,654	18,738	16,949	89·7	87·3
„ Bombay „	1,649	1,802	7,709	7,932	9,418	9,734	84·4	82·8
Grand Total	11,270	10,569	32,303	31,603	44,073	42,172	86·7	85·0

In the following table the offences are classified in accordance with their character :—

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Total of each class of offence.				Grand total of cases.
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	
Bengal	38	147	23	83	1	1,620	683	179	75	14	...	1	114	1,781	711	263	2,873
North-Western Provinces and Oudh	22	65	30	18	17	289	152	35	79	12	2	1	118	352	184	54	708
Punjab	34	701	536	166	11	1,351	1,637	146	83	13	4	...	128	2,054	2,319	152	4,729
Burma	15	677	8	62	1	21,268	12	445	29	60	...	1	91	2,005	25	508	2,629
Central Provinces	39	116	23	17	140	2,447	757	76	301	231	...	1	480	2,797	785	94	4,156
Assam	11	86	2	19	5	189	2	12	14	...	...	...	30	275	4	38	347
Coorg	...	6	...	1	...	39	22	12	...	...	...	...	...	45	22	18	87
Ajmer	2	289	17	7	1	223	3	1	3	30	2	...	6	542	21	8	577
Baluchistan	...	45	2	2	1	14	76	1	1	6	...	...	2	66	78	3	149
Andamans	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2
Berar	12	72	11	21	31	491	53	27	15	19	2	...	58	535	66	58	757
Total Bengal Presidency	172	2,210	631	405	208	7,505	3,501	831	650	391	13	4	1,030	10,509	4,215	1,743	17,077
„ Madras „	36	3,321	2,623	477	21	7,067	6,327	703	197	511	295	72	254	11,399	9,128	1,252	22,130
„ Bombay „	147	886	393	219	65	1,077	2,672	471	1,814	1,916	348	81	2,026	6,841	3,583	731	13,181
Grand Total { 1900-01 / 1899-1900	355 / 453	6,417 / 6,786	3,647 / 3,252	1,101 / 1,098	294 / 334	19,019 / 19,788	12,720 / 11,634	2,011 / 2,315	2,661 / 2,890	2,823 / 3,098	646 / 1,357	117 / 123	3,319 / 3,688	28,719 / 29,672	17,053 / 46,233	3,728 / 3,595	52,341 / 53,149

As compared with the previous year there was a decrease of 808 in the total number of breaches of Forest Law. The best results were obtained in the North-Western Provinces and Oudh, where the number fell from 1,288 to 708, in the Central Provinces, where the number fell from 4,841 to 4,146, the number of undetected cases falling from 313 to 100, and in Ajmer and Berar and Bombay. Madras again showed a considerable increase.

Unauthorized felling accounted for more than half the cases of the year; injury by fire showed a satisfactory decrease of 376 cases, although the figures in Bombay are still very high, *viz.*, 2,026, of which 1,814 remained undetected.

The total of undetected cases showed a most substantial decrease as compared with the previous year, the figures falling from 7,467 to 6,227.

II.—Protection from Fire.

The total area over which fire-protection was attempted rose from 32,737 to 33,906 square miles, an increase of 1,169 square miles. For this large increase Burma was entirely responsible. Of the area under protection, 95 per cent. was successfully protected as compared with 93 per cent. in the previous year, the best results being obtained in the Punjab, the Central Provinces, Coorg and Berar, in which provinces the area burnt did not exceed 1 per cent. of the area where protection was attempted. The worst results were obtained in Burma, where also the cost of protection was highest. The average cost of protection rose from R10 to R12 per square mile, it being lowest in Bombay. The proportion of the area under protection to the total area of the forests remained the same as in the previous year.

The details and the cost of the work done in the various provinces are shown in the following table:—

Province.	Area, in square miles.				Proportion of failures to area attempted.		Cost.				Proportion of area under fire-protection to total area of all forests. (*Leased forests included*).	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1900-01.	1899-1900.	1900-01.	1849-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.
					Per cent.	Per cent.	R	R	Pies.	Pies.	Per cent.	Per cent.
Bengal	2,120	2,114	2,077	1,920	2	9	7	7	2	2	16	16
North-Western Provinces and Oudh.	3,223	3,222	3,169	3,152	2	2	19	21	6	6	78	78
Punjab	908	906	903	788	0·5	2	6	8	2	2	9	9
Burma	5,163	3,810	4,562	3,473	12	9	34	30	10	9	5	4
Central Provinces	4,795	4,757	4,733	4,590	1	4	9	10	24	3	25	25
Assam	1,190	1,189	1,083	1,165	9	2	9	10	2	3	6	6
Coorg	204	204	202	151	0·9	26	25½	36	8	11	23	23
Ajmer	149	149	149	149	...	...	2½	½	0·3	...	100	100
Total	17,753	16,251	16,878	15,388	5	5	17	17	5	5	10	10
Berar	1,183	1,473	1,464	1,454	1	1	9	9	3	3	37	35
Total Bengal Presidency	19,226	17,724	18,342	16,842	5	5	17	16	5	5*	11	10
„ Madras „	5,218	5,136	5,082	4,355	2	5	7	7	2	2	26	26
„ Bombay „	9,462	9,877	8,810	8,901	7	10	4½	4	1	1	63	60
Grand Total	33,906	32,737	32,231	30,691	5	7	12	10	3½	3	16	6

* More correctly 4½.

The subjoined table analyzes the origin of the fires reported :—

Province.	(A) Fires caused by accident or through carelessness in burning fire-lines.		(B) Fires entering the forests by crossing exterior fire-traces.		(C) FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA.														Causes unknown.		Total of (A), (B) and (C), and of causes unknown.	
					By workmen employed in the forests, by purchasers of forest-produce and by wood-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By Railway engines.		By lightning or by fire-balloons.		By intentional firing.									
													In order to obtain new grass.		In order to turn out game, or to reduce cover.		Maliciously.		Total.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
Bengal	3	297	31	5,566	9	125	20	1,437	...	...	3	41	6	9,794	24	6,519	7	3,504	37	19,817	35	7,995	133	35,278
North-Western Provinces and Oudh. Central Circle	1	30	3	135	1	32	3	585	...	...	...	...	12	2,622	...	...	2	266	14	2,882	7	777	29	4,441
North-Western Provinces and Oudh. Oudh "	10	173	7	2,593	4	4,547	...	...	1	75	...	...	...	...	1	123	6	2,031	7	2,159	20	19,034	49	28,581
North-Western Provinces and Oudh. School "	4	190	2	194	1	9	2	80	...	...	1	30	1	120	...	...	...	...	1	120	5	443	16	1,066
North-Western Provinces and Oudh. Total	15	393	12	2,922	6	4,588	5	665	1	75	1	30	13	2,742	1	123	8	2,291	22	5,161	32	20,254	91	34,088
Punjab	3	4	10	117	18	1,766	35	459	...	...	3	...	49	1,211	1	...	5	1,092	55	2,303	16	1,187	140	5,876
Lower Burma. Pegu Circle	11	7,170	9	7,635	7	12,996	23	15,907	...	...	...	...	...	...	1	800	4	2,425	5	3,225	47	50,819	102	97,752
Lower Burma. Tenasserim Circle	5	652	1	206	...	...	4	2,187	...	...	1	320	...		...	...	2	684	2	684	...	...	17	4,049
Lower Burma. Total	16	7,822	10	7 841	7	12,996	27	18,094	...	...	1	320	...	...	1	800	6	3,109	7	3,909	47	50,819	115	101,801
Upper Burma. Northern Circle	9	8,871	16	114,827	5	2,207	12	12,050	1	2	1	7,040	...	...	...	...	...	...	...	...	...	...	2	47,360	46	193,357
Upper Burma. Southern "	16	8,502	9	43,611	1	700	47	34,595	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	2,606	81	90,014
Upper Burma. Total	25	17,373	25	158,438	6	2,907	59	46,645	1	2	1	7,040	...	...	...	...	...	...	...	...	...	...	10	49,966	127	283,371
Central Provinces. Northern Circle	16	20,186	16	10,651	15	10,686	25	13,595	4	1,708	1	30	...	...	...	...	6	5,885	6	5,885	34	36,637	117	88,488
Central Provinces. Southern "	7	161	19	3,033	12	2,970	10	747	...	...	...	...	...	...	...	...	9	10,095	9	10,095	39	66,155	96	83,161
Central Provinces. Total	23	20,347	35	13,684	27	13,366	35	14,342	4	1,708	1	30	...	...	...	...	15	15,980	15	15,980	73	102,792	213	181,649
Assam	2	2	17	15,053	...	...	4	4,874	...	...	1	60	...	...	...	...	4	47,557	4	47,557	7	643	35	68,169
Coorg	3	73	3	670	...	...	...	...	...	...	...	...	...	...	...	...	4	565	4	565	2	175	12	1,483
Ajmer	...	...	1	20	3	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	240	6	266
Berar	9	5,448	...	...	3	5,817	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17	11,265
Madras. Northern Circle	3	152	17	4,095	6	100	14	1,449	3	385	1	5	7	4,041	2	320	4	4,305	13	8,666	89	54,596	146	69,448
Madras. Central "	3	350	18	4,244	...	...	25	1,412	...	...	2	10	2	170	5	225	14	3,315	21	3,710	126	15,038	195	24,356
Madras. Southern "	14	31,747	46	2,061	11	782	16	277	...	...	2	375	11	1,461	9	398	4	302	24	2,161	46	3,654	159	41,460
Madras. Total	20	32,249	81	10,800	17	882	55	3,138	3	385	5	482	20	5,675	16	943	22	7,922	58	14,540	261	73,288	500	135,764
Bombay. Northern Circle	38	1,902	117	22,463	7	463	23	1,850	3	640	...	...	2	130	23	3,266	5	556	30	3,952	435	497,344	653	528,614
Bombay. Central "	18	2,483	124	55,973	4	400	293	51,918	15	1,579	10	104	13	7,979	6	6,199	6	1,643	25	15,821	234	152,974	673	284,252
Bombay. Southern "	2	44	5	293	2	155	68	3,337	6	153	16	442	13	1,059	2	10	1	30	16	1,099	559	56,349	674	61,872
Bombay. Sindh "	...	...	2	7	5	82	2	7	1	143	...	...	...	...	...	...	...	...	...	...	27	663	37	902
Bombay. Total	58	4 429	248	78,736	18	1,100	336	60,112	25	2,515	26	546	28	9,168	31	9,475	12	2,229	71	20,872	1,255	707,330	2,037	875,640
GRAND TOTAL 1900-01	177	88,437	473	283,247	119	44,583	576	159,806	34	4,685	42	8,549	116	28,490	74	17,865	83	84,249	273	130,704	1,710	1,014,689	3,434	1,734,689
GRAND TOTAL 1899-1900	174	50,936	400	215,491	235	156,101	631	148,194	58	11,699	59	4,118	230	178,681	88	34,007	154	75,843	472	288,531	1,943	1,093,344	3,872	1,978,420

The above table shows that the number of reported fires fell from 3,872 to 3,434. The origin of the fires remained unknown in 51 per cent. of the total number of cases as against 48 per cent. in the previous year.

Six hundred and fifty fires were due to accident or carelessness in burning fire-lines or to fire crossing the outer boundary as against 574 in the previous year, while 274, or 8 per cent., were due to intentional incendiarism as compared with the 10 per cent. of the previous year.

III.—Regulation of Grazing.

The following table shows the area closed against grazing to all animals and to browsers only :—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,831	5,446	21	3,656	1,923	11	4,033	...	...	13,570	7,369	32
N.-W. P. and Oudh	4,056	1,978	522	30	...	1	43	1	30	4,121	1,979	556
Punjab	2,897	639	547	4,833	50	79	1,969	14	233	9,754	703	859
Burma	17,837	14,659	45	...	...	...	31,562	...	...	99,399	14,659	45
Central Provinces	18,831	2,214	6,898	...	...	...	133	...	34	18,019	2,214	6,932
Assam	3,609	2,675	915	...	...	...	17,239	...	...	20,848	2,675	915
Coorg	238	163*	...	663	...	...	...	..	...	901	163	...
Ajmer	139	136½	139	...	...	...	10	...	10	149	133½	149
Baluchistan	203	150	...	...	...	...	...	...	...	203	150	...
Andamans	156	...	...	...	...	...	1,735	...	...	1,951	...	...
Berar	3,953	1,259	131	...	...	...	...	...	...	3,953	1,259	131
Total, Bengal Presidency	57,311	29,319‡	9,218	9,237	1,973	91	106,789	15	307	173,370	31,307‡	9,619
„ Madras „	16,593	1,610†	16,589*	...	...	...	2,952	24	1,218†	19,541	1,637	17,907‡
„ Bombay „	13,707	2,222	5,265	1,251	...	225	...	...	...	14,958	2,222	5,490
Grand Total	83,140	33,151‡	31,072	10,488	1,973	319	109,741	42	1,625	208,369	35,166‡	33,016
1899-1900	85,979	31,653	16,462	8,669	1,999	312	102,401	28	439*	197,460	33,671	46,184

* 486 square miles closed to both sheep and goats and 16,105 square miles closed to goats only.
† 129 square miles closed to both sheep and goats and 1,193 square miles closed to goats only.
‡ 694 square miles closed to sheep and goats, 17,313 square miles closed to goats only.

The area closed to all animals was 1,495 square miles in excess of that in the previous year, the increase being chiefly in the Bengal Presidency, where the additional area closed was 1,218 square miles. The area closed is thus some 17 per cent. of the total area of the forests. The largest increase was in Berar, where, owing to gradual recovery from famine, many of the special grazing concessions made were no longer required.

The area closed to browsers in the Bengal Presidency decreased by 853 square miles, principally in Berar, though the reason for this latter decrease is not clearly explained. In Madras the areas closed to browsers appear to show an increase from 696 to 17,907 square miles; this is, however, only nominal, as the figures for the previous year were incorrectly given. The correct figures of the two years are—

	Closed to sheep and goats.	Closed to goats only.
	Sq. miles.	Sq. miles.
1899-1900	696	17,669
1900-1901	604	17,303

The areas closed to all grazing in the three Presidencies show the following proportions to the total forest area—Bengal Presidency 18 per cent., Madras Presidency 8 per cent. and Bombay Presidency 15 per cent.

In the Bengal Presidency the number of cattle grazing at full rates was 2,742,679, as against 3,427,904 in the previous year, while the number grazing at privileged rates was 1,199,717, as against 768,201. Thus in 1900-01, 3,942,396 cattle were grazing at full and privileged rates, as against 4,196,105 in the privious year, while free grazing, otherwise than under settlement, was allowed to 696,852 cattle, as against 1,274,956 in 1899-1900.

The total number of cattle grazing otherwise than of right under settlement decreased by more than 800,000. The decrease was most marked in Berar, and points to the heavy cattle mortality consequent on famine.

The figures in Madras show no important divergence from those of the previous year, while for Bombay comparison is not possible, owing to the figures of 1899-1900 having been incomplete.

The following table shows, so far as the information is available, the incidence of grazing in open forests :—

Province.	Circle.	Grazed on payment, number of animals.										Grazed free, number of animals.									
		At full rates.					At privileged rates.					By right under Settlement.					During pleasure of Government, or otherwise than under Settlement.				
		Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.
Bengal	...	4,187	18,376	6,245	...	20	9,380	182,470	17,181	...	545	26,335	60,197	23,587	...	...	67	371	...	...	...
N.-W. P. and Oudh	Central	20,174	67,635	3,039	174	380	2,417	14,707	83,615	...	1,117	17,417	1,03,507	11,626	...	1,723	46	1,425	...	...	...
	Oudh	20,444	82,580	4,207	...	26	24,259	98,977	9,164	...	...	3,337	18,613	...	...	...	1,226	3,873	524	...	55
	School	5,632	34,085	12,381	2,291	6,983	1,266	8,953	133	...	...	181	12,238	47,932	...	...	...	1,415	...	...	...
	Total	46,250	184,300	19,627	2,465	7,389	27,942	122,637	92,917	...	1,117	20,935	134,338	59,558	...	1,723	1,272	6,713	524	...	55
Punjab	...	28,160	63,290	433,251	8,144	1,017	891	15,102	228,910	798	52	148,982	619,669	567,365	282	10,129	1,204	7,532	577	451	229
Burma	Pegu	712	683	...	...	...	...	...	...	...	...	7,611	13,493	...	...	25	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	9,717	...	24	...	9	...	...	...	...	...
	Northern	...	17	...	...	...	...	...	...	...	...	4,762	618	...	...	...	703	...	...	...	52
	Southern	129	309	...	...	47	...	...	...	...	...	31,238	...	...	...	...	60	22	...	...	517
	Total	841	1,009	...	...	47	...	...	...	...	...	53,328	14,111	24	...	34	763	22	...	...	569
Central Provinces	Northern	128,949	637,867	48,047	71	1,814	...	...	...	...	...	...	...	...	...	...	9,220	69,177	1,050	...	...
	Southern	48,475	407,510	71,643	...	252	41,701	317,661	83,715	...	1,420	...	...	...	...	...	24,341	241,320	60,396	...	5
	Total	173,424	1,044,197	119,690	71	2,066	41,701	317,661	83,715	...	1,420	...	...	...	...	...	33,621	301,497	61,446	...	5
Assam	...	23,067	6,590	19	...	136	...	...	...	...	...	...	...	...	...	...	47,113	216,688	11,733	...	676
Coorg	...	389	3,297	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	6,142	...	...	...
Ajmer	...	59	3,056	2,219	102	166	...	...	...	...	...	163	2,119	...	...	...	108	544	...	...	...
Baluchistan	...	158	1,661	...	...	4	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	...	56,278	294,668	181,511	...	892	7,918	35,197	12,007	12	611	16	87,416	...	...	...	2,144	49,977	13,162	...	707
Total Bengal Presidency		333,113	1,620,654	765,693	10,782	12,237	87,335	673,067	434,760	810	3,745	249,699	950,131	667,487	283	12,110	86,592	619,456	88,072	461	2,241
Madras Presidency	Northern	58,062	336,768	791,508	...	488	20,314	61,833	13,441	...	...	...	2,685	5,505	...	...	546	3,016	...	...	...
	Central	28,257	634,312	782,553	...	44	...	98	216	...	...	...	1,900	...	...	...	3,260	12,924	2,861	...	...
	Southern	21,921	265,687	89,246	...	685	...	1,390	...	...	...	378	...	...	...	...	69	432	...	...	...
	Total	108,240	1,236,797	1,663,307	...	1,217	20,314	63,321	13,644	...	...	378	4,585	5,505	...	...	3,806	21,402	2,861	...	...
Bombay Presidency	Northern	68	1,878	...	...	...	397	2,378	...	...	...	20,495	123,626	2,078	...	...	38,207	177,775	...	...	1,672
	Central	1,759	32,156	59,196	...	775	2,858	19,686	35,475	...	748	...	...	...	...	...	17,341	110,041	2,525	...	1,324
	Southern	2,234	1,367	34,153	...	...	129,672	385,520	136,895	3	103	...	...	...	...	...	...	...	...	...	...
	Sindh	35,261	43,256	238,793	6,379	491	5,771	14,519	14,950	456	110	4,380	18,654	91	3	545	810	4,422	3,600	1,614	2,708
	Total	39,322	78,657	332,147	6,379	1,269	138,698	422,133	187,320	459	961	24,875	142,280	2,169	3	545	56,391	292,238	6,125	1,614	5,704

The total revenue realized in the Bengal Presidency from grazing dues was ₹5,35,385, as against ₹6,55,226 in the previous year, the principal difference being a decrease in Berar of ₹1,07,000, in the Central Provinces of ₹18,000, while the Punjab showed an increase of ₹11,000.

In Madras an excess of ₹24,000 was realized, while Bombay showed a decrease of ₹58,000.

The amount of grazing revenue foregone was ₹15,37,000, as against ₹16,26,000 in 1899-1900, more than half of which was waived in the Bombay Presidency.

The amount of revenue realized in the various provinces from grazing fees, and that estimated to have been foregone by reason of free grazing, are shown in the following statement:—

Province.	Circle.	Amount realized.	Amount foregone.
		₹	₹
Bengal	...	22,127	87,406
North-Western Provinces and Oudh	Central	22,129	41,017
	Oudh	34,253	25,969
	School	15,512	7,941
	TOTAL	71,899	74,927
Punjab	...	55,650	2,45,696
Burma	Pegu	1,246	15,721
	Tenasserim	...	8,787
	Northern	8	1,865
	Southern	577	18,982
	TOTAL	1,831	45,355
Central Provinces	Northern	1,50,880	12,256
	Southern	95,734	73,868
	TOTAL	2,46,614	86,124
Assam	...	13,925	88,331
Coorg	...	1,416	2,191
Ajmer	...	48	472
Baluchistan	...	301	9,590
Andamans	...	...	...
Berar	...	1,21,574	38,882
Total Bengal Presidency	...	5,35,385	6,73,874
„ Madras „	Northern	1,86,761	19,735
	Central	2,11,621	4,259
	Southern	80,663	886
	TOTAL	4,79,045	24,880
„ Bombay „	Northern	1,809	2,41,690
	Central	56,919	1,09,060
	Southern	98,484	4,52,102
	Sindh	35,071	35,577
	TOTAL	1,92,283	8,38,429
GRAND TOTAL 1900-1901	...	12,06,713	15,37,188
„ 1899-1900	...	13,60,970	16,26,363

IV.—Reproduction and Sylviculture.

The net area of regular plantations and *taungyas* increased by 1,559 acres in the Bengal Presidency.

In Madras the area decreased by 3,499 acres owing to extensive exclusion in the Central Circle.

In Bombay 607 acres were added, while 17,562 acres were excluded, making a net decrease of 16,901 acres.

The amount excluded consisted of old plantation that had ceased to exist as such, and were in consequence written off the form.

The following table shows the changes which took place in the areas of plantations and the cost of the year's work in the several provinces :—

Province.	Area, in acres.												Cost of operation during the year.
	At commencement of the year.			Added during the year.			Excluded during the year.			Balance at the close of the year.			
	Regular Plantations.	Taungyas.	Total.	Regular Plantations.	Taungyas.	Total.	Regular Plantations.	Taungyas.	Total.	Regular Plantations.	Taungyas.	Total.	
Bengal	2,872	...	2,872	...	...	...	...	...	...	2,872	...	2,872	167
North-Western Provinces and Oudh	3,150	...	3,150	58	...	58	...	...	...	3,208	...	3,208	1,318
Punjab	696	...	696	65	...	65	65	...	65	696	...	696	395
Burma	3,668	46,606	50,274	...	1,351	1,351	...	...	...	3,668	47,957	51,625	53,275
Central Provinces	...	...	...	...	...	...	...	...	...	...	...	...	...
Assam	*2,868	92	2,960	80	...	80	...	...	...	2,968	92	3,060	15,914
Coorg	2,309	534	2,843	...	42	42	...	...	...	2,309	576	2,885	3,335
Ajmer	907	...	907	...	...	...	...	...	...	907	...	907	...
Baluchistan	33	...	33	...	...	...	...	...	...	33	...	33	35
Andamans	362	...	362	28	...	28	...	...	...	390	...	390	21
Berar	655	...	655	...	...	...	...	...	...	655	...	655	...
Total Bengal Presidency.	17,540	47,232	64,772	231	1,393	1,624	65	...	65	17,706	48,625	66,331	74,460
„ Madras „	†36,312	...	36,312	1,041	...	1,041	4,540	...	4,540	‡32,843	...	32,843	41,450
„ Bombay „	20,236	...	20,236	607	...	607	17,562	...	17,562	3,335	...	3,335	15,140
Grand Total	74,118	47,232	1,21,350	1,879	1,393	3,272	22,167	...	22,167	53,930	48,625	1,02,455	1,31,050

* 2,695 acres in the Review for 1899-1900; difference due to a re-survey of certain compartments in the Chanduar Rubber Plantation.
† In the Review for 1899-1900 the area at the close of the year was given as 37,977 acres; 36,312 are revised figures furnished by Conservators.
‡ Includes 10,327 acres of topes.

The following sums were spent on cultural operations :—

	R		R
Bengal	10,192	Coorg	358
North-Western Provinces and Oudh	2,926	Ajmer	530
Punjab	7,473	Baluchistan	22
Burma	5,020	Andamans	66
Central Provinces	46	Berar	815
Assam	15	Madras	4,994
		Bombay	9,514
	Total	R41,971	

CHAPTER III.

Working and Outturn.

The total outturn of all forests under the control of the Forest Department in timber and fuel, bamboos and minor produce, with the average outturn per square mile, is exhibited in the following table:—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			Average outturn per square mile. Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	21,692,711	11,722,736	6,01,519	18,602,725	4,708,227	1,59,127	734,803	7,602,558	6,9,0	3,613	1,998	31	5,113	1,223	14	182	1,335	2
North-Western Provinces and Oudh.	12,471,275	10,258,816	2,51,982	418,180	23,546	2,980	21,964	2,225	1,912	3,079	2,650	62	13,516	961	35	557	92	21
Punjab	6,179,509	351,444	2,06,555	22,292,515	21,057	2,51,229	12,316,273	70,130	90,931	2,235	126	72	1,561	5	52	4,510	3	45
Burma	10,771,089	15,833,000	83,973	...	...	...	33,767,759	16,540,000	1,55,364	576	850	5	...	...	...	811	571	2
Central Provinces	15,191,333	13,316,869	5,65,755	...	...	...	29,590	2,500	1,913	806	971	30	...	...	...	214	18	7
Assam	1,217,921	1,692,334	31,567	...	...	...	10,335,131	25,811,111	3,73,951	337	469	9	...	...	...	630	1,573	23
Coorg	164,899	165,110	1,957	285,370	11,103	12,459	...	...	...	693	691	29	601	17	19	...	...	...
Ajmer	221,831	1,771	20,616	1,105	...	91	7,810	...	776	1,617	13	149	...	...	...	781	...	78
Baluchistan	21,313	...	10,903	...	...	...	371,822	...	1	139	...	55	...	...	...	(a)	(a)	(a)
Andamans	1,100,201	171,951	283	...	...	...	740,455	293,791	1,471	2,976	1,182	2	...	...	...	413	273	2
Berar	3,132,707	3,285,112	3,97,313	...	...	...	...	...	...	737	856	61	...	...	...	...	...	...
Total Bengal Presidency 1900-01.	72,228,855	62,422,143	17,80,008	41,667,695	4,772,579	4,28,440	53,337,710	29,557,894	6,36,566	1,219	1,061	31	4,517	516	46	(b) 547	754	(b)
Total ... ... 1899-1900.	72,133,119	59,183,919	21,76,858	36,596,315	4,652,206	4,20,389	60,709,165	27,972,453	7,54,608	1,256	1,210	38	3,951	685	43	(b) 611	369	(b) 8
Madras (c)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay (d)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(a) Area of unclassed forests not given.
(b) Excludes Baluchistan.
(c) The forests of the Madras Presidency yielded 17,991,046 cubic feet of timber and fuel, 19,923,476 bamboos, and R12,90,606 worth of minor forest produce. Dividing these figures by the 29,541 square miles of forests under the control of the Madras Forest Department, the average outturn per square mile of forests was 615 cubic feet of timber and fuel, 16,133 bamboos, and R66 worth of minor produce.
(d) The forests of the Bombay Presidency yielded 41,145,611 cubic feet of timber and fuel, 4,279,219 bamboos, and R7,01,566 worth of minor forest produce. Dividing these figures by the 14,958 square miles of forests under the control of the Bombay Forest Department, the average outturn per square mile of forests was 2,762 cubic feet of timber and fuel, 292 bamboos, and R47 worth of minor produce.

The amounts of forest produce removed by Government agency, contrasted with the amounts removed by purchasers, were as follow :—

Province.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	165,351	6,818,608	163,280	19,256,196	561,338	18,233,419	3,861	2,35,711
North-Western Provinces and Oudh.	656,113	2,811,467	1,935,008	2,932,367	298,949	10,181,019	33,919	1,59,710
Punjab	1,021,339	1,922,220	3,794,700	1,099,731	439,597	19,021	28,929	1,70,710
Burma	2,723,080	23,276,993	6,714	15,069,274	59,000	58,314,000	2,649	1,79,592
Central Provinces	283,055	1,835,939	1,125,623	7,841,482	1,365,203	14,638,478	47,822	3,73,180
Assam	50,742	3,078,902	4,651	2,727,895	12,055	25,095,857	12,888	79,981
Coorg	59,401	272,448	9,200	85,920	...	173,210	172	15,074
Ajmer	165	1,883	39	214,979	...	1,770	4,462	1,099
Baluchistan	407	8,626	26,286	358,836	...	...	5	1,005
Andamans	252,724	30,611	1,238,357	3,349	44,095	34,000	3,702	309
Berar	...	412,209	...	1,607,329	...	2,013,378	...	1,25,721
Total Bengal Presidency	5,222,375	39,819,606	8,303,897	51,147,368	2,780,247	128,704,152	138,409	13,92,092
,, Madras ,,	588,039	2,510 201	3,052,275	11 035,484	318,782	29,386,376	43,142	10,04,973
,, Bombay ,,	1,225,399	2,185,978	5,886,151	20,729,592	63,689	3,990,532	41,299	3,41,471
Grand Total	7,016 813	44,515,785	17,242,323	82,962,434	3,162,718	162,081,060	222,850	27,38,536

These figures compare with those of the previous year as follow :—

Agency by which produce was removed.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government	7,015,813	7,380,947	17,212,323	19,893,918	3,162,718	2,685,911	2,22,850	4,80,404
Purchasers	44,515,785	46,674,377	82,962,434	80,142,151	162,081,060	153,812,114	27,38,536	31,47,974
Total	51,531,598	54,055,324	100,204,757	100,036,069	165,243,778	156,498,025	29,61,386	36,28,378

From a perusal of the above tables, it will be noticed that the total amount of timber removed departmentally and by purchasers was 2,523,726 cubic feet less than in the preceding year, the most noticeable falling off occurring in Assam, which is explained by the fact that revised and more reasonable factors were used in calculating the forest produce removed in the Garo Hills.

The outturn of fuel underwent little change.

The number of bamboos extracted by purchasers showed an increase of some 8¼ lakhs, the principal increase being in Bengal, Burma, the Central Provinces, Assam, Berar and Madras, a noticeable decrease occurring in the North-Western Provinces and Oudh is explained below.

The value of minor produce extracted fell by R6,67,000, chiefly in Burma, the Central Provinces, Berar and Bombay.

The most important details of the working and outturn in the various provinces are as below :—

Bengal—

Class of Forest and agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.
Reserved.	C. ft.	C. ft.	C. ft.	No.	R
Government	113,310	151,932	21,662,711	97,290	
Purchasers	5,421,488	15,004,957		10,553,845	1,85,069
Free-grantees	11,801	22,934		41,200	1,500
Right-holders	...	936,289		1,030 400	12,872
Total	5,546,599	16,116,112		11,722,736	2,01,519
Protected.					
Government	35,752	10,371	18,692,725	463,850	1,788
Purchasers	766,621	4,161,201		77,237	41,722
Free-grantees	725	...		1,000	2
Right-holders	253,972	13,464,083		4,166,260	1,15,820
Total	1,057,070	17,635,655		4,708,287	1,59,327
Unclassed.					
Government	16,289	977	737,803	198	...
Purchasers	630,449	90,038		7,602,336	8,920
Free-grantees	...	...		...	...
Right-holders	...	...		...	...
Total	646,788	91,015	...	7,602,534	
Grand Total 1900-01	7,250,457	33,842,782	41,093,239	24,033 557	3,60,766
Ditto 1899-00	7,340,322	34,565,823	41,906,145	21,035,633	3,22,746
Difference	—89,865	—7,23,041	—812,906	+2,997,924	+47,020

The decrease in the amount of timber removed was nominal only, being occasioned by a change in the conversion factor. The diminution of fuel-outturn was owing to the exclusion of 143 square miles from the protected forest area. Minor produce showed an increase of ₹47,000 owing to the higher amounts obtained for sabai grass in the Singhbhum Division.

North-Western Provinces and Oudh.—The following statement shows the gross output of the forests for the years 1899-1900 and 1900-1901 :—

Circle.	1899-1900.	1900-1901.	Difference.
	Timber.		
	C. ft.	C. ft.	C. ft.
Central	1,312,000	1,315,000	+3,000
Oudh	2,019,000	1,805,000	−214,000
School	1,067,000	1,145,000	+78,000
Total	4,398,000	4,265,000	−133,000
	Firewood.		
	C. ft.	C. ft.	C. ft.
Central	3,442,000	3,538,000	+96,000
Oudh	3,941,000	3,111,000	−830,000
School	1,690,000	1,995,000	+305,000
Total	9,073,000	8,644,000	−429,000
	Minor produce.		
	₹	₹	₹
Central	2,07,576	2,06,338	−1,238
Oudh	92,526	74,673	−17,853
School	60,288	69,467	+9,179
Total	3,60,390	3,50,478	−9,912
	Timber.	Firewood.	Minor produce.
	C. ft.	C. ft.	₹
District protected forests 1899-1900	2,500,000	63,000	15,447
District protected forests 1900-1901	1,581,000	32,000	14,891
Difference	−919,000	−31,000	−556

The agency of removal is shown below.—

Agency by which removed.	Timber.	Fuel.	Total wood.	Ringals and bamboos.	Grazing and grass.	Minor Produce.
	C. ft.	C. ft.	C. ft.	No.	₹	₹
Government	656,113	1,935,008	2,591,121	298,949	3,824	30,095
Purchasers	2,811,467	2,982,367	5,793,834	10,181,019	86,879	72,331
Free-grantees	86,090	160,117	246,207	...	1,774	885
Right-holders	712,872	3,566,496	4,279,367	306,913	54,195	4,651
Grand Total 1900-1901	42,66,542	8,643,957	12,910,529	10,786,881	146,672	1,08,462
Grand Total 1899-1900	4,398,674	9,072,703	13,471,377	18,654,309	160,999	1,07,712

The gross outturn of timber and fuel fell short by half a million of the figures of the peceding year. The Oudh Circle is responsible for the decrease, which is accounted for by

shortage of railway wagons and the inability of the Rohilkhand and Kumaun Railway Company to work up to its indent for sleepers.

The marked difference in the amount of wood taken from the District protected forests is explained by the fact that the figures of the year under review do not include an estimate of what was taken out by the right-holders.

The decreased export of bamboos is due to glutted markets, it being estimated that there were at least 5,000,000 remaining still unsold from the previous year.

Punjab.—The following table gives a summary of the work of the year:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Minor Produce.
	C. ft.	C. ft.	No.	₹	₹
Government	1,021,339	3,794,709	439,537	75	28,854
Purchasers	1,222,220	1,039,731	19,021	1,57,967	12,743
Free-grantees	7,726	161,572	...	8,515	376
Right-holders	1,018,016	33,264,984	308	2,97,230	48,434
Total	3 269,301	38,320,996	455,926	4,63,787	90,407
Total for 1899-1900	3,094,835	31,406,015	1,027,018	4,61,681	88,986
Difference—Increase	174,466	6,914,981	...	2,106	1,421
,, Decrease	...	...	568,092	...	...

The increase shown under fuel is nominal, it being due to the fact that an estimate of the fuel given to right-holders has been for the first time included.

The departmental sale system has proved unsuccessful for bamboos and has now been abandoned. Under minor produce 6,263 maunds of crude resin were collected in 1900 in the Kangra Division for the manufacture of colophony and turpentine.

The following statement shows that the exploitation of pine timber from the forests under this department continues to increase:—

Year.	Removed by Government Agency.				Removed by Purchasers.			
	Deodar.	Pine.	Other timber.	Total.	Deodar.	Pine.	Other timber.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
1899-1900	917,215	105,492	16,506	1,039,213	30,335	733,506	208,789	972,630
1900-1901	869,546	139,257	12,536	1,021,339	31,315	828,376	362,529	1,222,220

Burma.—The gross outturn of the forests is exhibited, as compared with that of the preceding year, in the following statement:—

Agency.	Timber.	Fuel.	Bamboos.	Grass and Grazing.	Minor Produce.
	C. ft.	C. ft.	No.	₹	₹
Government	2,733,080	6,714	59,000	...	2,649
Purchasers	23,276,993	15,069,274	58,314,000	1,831	1,77,761
Free-grantees	348,340	...	10,000	5,579	1
Right-holders	556,633	2,047,444	4,040,000	39,776	11,440
Total	26,915,046	17,123,432	62,423,000	47,186	1,91,851
Total in 1899-1900	26,769,944	12,915,240	56,058,000	25,317	3,20,358

The amount of timber extracted shows little variation from the figures of the previous year. The outturn of fuel has increased, chiefly under the agency of purchasers and right-holders, though the reasons for the large increase are not very clearly explained in the reports.

The demand for bamboos increased in all Circles, and the increased outturn in the Pegu Circle is stated to have had a markedly beneficial result as regards natural reproduction. Minor produce showed a considerably diminished output, due principally to the exhaustion of the cutch in the unclassed forests of the Pegu Circle, the outturn being 8,000 tons less than in 1899-1900. The value of rubber extracted also declined from R4,21,000 to R47,000 in the Northern Circle owing to the prolonged dry season and bad market in Rangoon. The number of teak trees girdled was 55,448, as against 29,270 in the previous year. The total outturn of teak timber appears to have been 247,782 tons, as against 274,814 in 1899-1900.

The following table gives the figures of the export of teak since 1896-97 :—

Year.	From Moulmein.		From Rangoon.		Total.		Average value per ton.
	Tons.	Value.	Tons.	Value.	Tons.	Value.	
		R		R		R	R
1896-97 . .	75,198	60,98,816	115,854	18,50,012	191,152	1,59,18,828	83·44
1897-98 . .	65,986	53,21,499	207,405	1,84,37,474	273,391	2,38,58,937	87·27
1898-99 . .	66,002	56,04,701	202,281	1,71,44,554	268,283	2,27,49,255	84·78
1899-1900 . .	62,983	54,84,419	209,303	1,73,87,530	272,286	2,28,71,949	84·00
1900-1901 . .	64,271	55,58,616	183,511	1,51,11,083	247,782	2,06,69,699	83·42

Central Provinces.—The following summary, comparing the outturn of timber and the different agencies employed in exploiting the same during the past two years, is deduced from Form No. 57 :—

Agency of exploitation.	1899-1900.			1900-1901.		
	Timber.	Fuel.	Total.	Timber.	Fuel.	Total.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
	Southern Circle.					
By Government . .	246,496	458,551	705,047	205,006	351,132	556,138
„ purchasers . .	346,416	3,333,296	3,679,714	961,890	4,790,383	5,752,273
„ free-grantees . .	304,889	4,979,984	5,284,873	64,670	3,375,613	3,440,283
Total .	897,801	8,771,830	9,669,631	1,231,566	8,517,128	9,748,694
	Northern Circle.					
By Government . .	45,773	1,211,957	1,257,730	78,049	774,491	852,540
„ purchasers . .	419,472	1,889,406	2,308,878	894,049	3,051,099	3,945,148
„ free-grantees . .	27,127	4,870,960	4,898,087	24,332	650,209	674,541
Total .	492,372	7,972,323	8,464,695	996,430	4,475,799	5,472,229
Grand Total .	1,390,173	16,744,153	18,134,326	2,227,996	12,992,927	15,220,923

Compared with last year, there is a net decrease of nearly 3,000,000 cubic feet of timber and fuel, due chiefly to the abrogation of large free-grants in the Northern Circle.

In both Circles the quantity removed departmentally has fallen, and the large decrease in the Northern Circle is explained by the fact that the year's coupes were sold to contractors

instead of being worked departmentally. In both Circles also there is an increase in the amount removed by purchasers. This was to be expected, and is a natural concomitant of the improved condition of the country.

The total number of bamboos taken out decreased by 46 lakhs, while minor produce realised R13,000 more than in the previous year. The Chief Commissioner remarks as follows regarding grazing in his Resolution on the report :—

"Owing to the partial withdrawal of famine concessions, the number of cattle grazed free decreased by 489,225 in the Southern Circle, and by 27,807 in the Northern Circle. There was a corresponding increase in the number grazed on payment, of 170,862 in the Southern Circle, and of 56,839 in the Northern Circle."

Assam.—The table below, prepared from Form No. 57, gives a comparative statement of the timber outturn for the year :—

Class of Forests and agency of exploitation.	1899-1900.						1900-1901.					
	Timber.		Fuel.		Total.		Timber.		Fuel.		Total.	
	Traders and consumers.	Waste land lessees.	Traders and consumers.	Waste land lessees.	Traders and consumers.	Waste land lessees.	Traders and consumers.	Waste land lessees.	Traders and consumers.	Waste land lessees.	Traders and consumers.	Waste land lessees.
1	2	3	4	5	6	7	8	9	10	11	12	13
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
From Reserved Forests	946,440	...	226,823	...	1,173,263	...	977,375	...	240,519	...	1,217,923	...
„ Unclassed „	6,803,621	215,397	8,892,970	259,031	15,696,591	504,428	2,822,007	133,781	7,257,241	126,535	10,089,318	265,316
Total	7,750,061	215,397	9,119,793	259,031	16,869,859	504,428	3,799,382	133,781	7,507,760	126,535	11,307,242	265,316
					17,374,287						11,573,658	
By Government	129,696	...	16,993	...	146,689	...	50,712	...	4,651	...	55,363	...
„ purchasers	6,836,905	...	1,731,061	...	11,117,966	...	2,940,121	...	2,601,360	...	5,541,481	...
„ waste land lessees	...	215,397	...	259,031	...	504,428	...	133,781	...	126,535	...	265,316
„ right-holders	...	...	...	...	...	...	800	...	...	...	800	...
„ free-grantees	783,460	...	1,371,731	...	5,605,801	...	808,749	...	4,901,719	...	5,710,068	...
	7,750,061	215,397	9,119,793	259,031	16,869,859	504,428	3,799,382	133,781	7,507,760	126,53	11,307,742	265,316
	7,965,458		9,378,829		17,374,287		3,933,263		7,634,295		11,573,658	
	17,374,287						11,573,658					

The large decrease in outturn, as explained elsewhere, is due to revised factors being used in calculating the quantities of forest produce removed. Bamboos were taken out to the value of R12,762 as against R7,630 in the previous year.

The Chief Commissioner in his Resolution on the work of the year gives an interesting summary of the rubber industry.

"The trees in compartments 9, 10, and 14 of the Chardwar rubber-plantation, and in compartments 1, 2, 3, and 4 of the Kulsi plantation, were tapped for the first time, and 100 trees in compartment 4 of the former plantation were tapped for the third year in succession. The trees tapped for the first time in the Chardwar plantation yielded at the rate of 8·5 lbs. per acre and ·67 lb. per tree, as compared with an average of about 9 lbs. per acre and 6 lb. per tree obtained in previous years. The tapping operations in the Kulsi plantation, on the other hand, gave an average outturn of 28·87 lbs. per acre and of 1·06 lbs. per tree. These results are noticeable, as the Kulsi plantation is the more densely planted, the trees there averaging 27 to the acre, as compared with 12 to the acre in the Chardwar plantation. It is stated, moreover, that the trees in the Kulsi plantation were undertapped. On the other hand, these trees are of greater age than those tapped in the Chardwar plantation, and might therefore be expected to yield a larger outturn. It also appears that some trees in the Chardwar plantation have been insufficiently tapped in previous years, that the undergrowth in the plantation is thick, many of the rubber trees being covered with creepers, and that their growth is hampered by jungle trees. It cannot, therefore, be said that the comparative advantages of dense or sparse planting of rubber trees have as yet been finally determined by these operations. The work of clearing the Chardwar plantation of the encumbering jungle tree growth as well as of undergrowth and creepers will be undertaken as funds permit.

All tapping operations were done with a gouge, a special V-shaped gouge being used at Chardwar for the first time. The superiority of gouge tapping over the old system of tapping with *kukris* or *daos* has been fully demonstrated. Mats were used in collecting the rubber overflowing from the cuts, which was thus obtained in a comparatively clean state. The total outturn obtained from the two plantations was 3,775 lbs. of clean dry rubber and 1,035 lbs. of "mat rubber." The outturn was disposed of in Calcutta, where the clean dry rubber fetched R190 per maund of 82 lbs., or R2·5·1 per pound, as compared with 3 shillings and 7 pence, equivalent to R2·11 per pound, obtained in London in the preceding year. The "mat rubber" sold for from R100 to R160 per maund. The net profit of the rubber-tapping operations amounted to R6,726-12-1 as compared with R6,840-10-6 in 1898-1900. The results of the tapping of 100 trees for the third year in succession showed a great falling off in outturn, as compared with previous tappings.

Excluding the yield from the Chardwar and Kulsi plantations, the outturn of home and foreign rubber amounted to 3,525 maunds, against 5,502 in the previous year."

The total number of tea boxes turned out by the saw mills fell from 410,619 to 386,076, owing to the importation of foreign boxes which have now obtained firm hold on the market.

Coorg.—The following statement summarises the total outturn of major and minor produce, and compares with that of the previous year :—

Agency of Work.	Timber and Poles in c. ft.		Sandalwood, in tons.		Fuel in c. ft.		Bamboos, in c. ft.		Grass and grazing value		Other forest produce, including cardamoms.	
	1899-00.	1900-01.	1899-00.	1900 01.	1899-00.	1900-01.	1899-00.	1900-01.	1899-00.	1900-01.	1899-00.	1900-01.
By Government . . .	39,328	18,901	175	212	7,505	9,200	...	...	...	...	26	172
„ Purchasers . . .	176,290	272,443	...	...	119,280	85,920	139,310 Reeds.	130,010 Reeds. 43,200	2,175	*1,415	14,401	13,829
„ Free-grantees . . .	5,800	3,200	...	...	...	...	5,625	3,000	...	...	...	...
„ Right-holders . . .	...	...	...	...	...	...	...	...	856	2,191	...	...

*Includes R29, being the value of grass.

During the year 78,488 cubic feet of timber were removed by purchasers from the reserved forests, against 1,31,950 cubic feet in the previous year, the increased amount shown in the above table coming from the protected forests. Of the total of 212 tons of sandalwood collected, 162 tons were sold at an average of R399 per ton, this also being the rate obtained in the previous year.

The Chief Commissioner in his Resolution on the report impresses upon the Forest Officer the necessity of opening up new markets for Coorg timber.

Ajmer.—No timber or fuel was cut by departmental agency.

The following shows the outturn of the year, the figures being taken from Form No. 57, as also that of the previous year :—

Agency.	Timber.		Fuel.		Other produce.	
	1899-1900.	1900-01.	1899-1900.	1900-01.	1899-1900.	1900-01.
	C. ft.	C. ft.	C. ft.	C. ft.	R	R
By Government	175	163	...	39	11,571	4,462
„ Purchasers	1,080	1,683	208,505	214,979	1,685	1,138
„ Free-grantees	...	...	...	16,262	4,157	1,379
„ Right-holders	70	697	48,290	253	2,279	13,569
Total .	1,325	2,543	256,795	231,533	19,665	20,348

The totals show no marked difference as compared with the figures of the previous year; it is noticeable, however, that the amount of fuel and grass removed by right-holders is very largely in excess of what it has previously been.

Baluchistan.—The following statement shows the total outturn of forest produce extracted during the year :—

Class of Forests.	Timber.	Fuel.	Minor Produce.	Grazing.	Total.	
	C. ft.	C. ft.	R	R	C. ft.	R
State Forests . . .	2,255	26,088	1,012	9,891	28,343	10,903
Unclassed Forests . .	10,898	360,924	4	...	371,822	4
Total .	13,153	387,012	1,016	9.891	400,165	10,907

In the previous year the amount of timber and fuel removed was, respectively, 12,705 cubic feet and 450,012 cubic feet. The smaller consumption of fuel was due to the supplies having diminished in the unclassed forests, which will shortly be unable to supply the heavy annual demand. This question is engaging the attention of the Agent to the Governor General.

The Andamans.—The outturn compares with that of 1899-1900 as follows:—

Timber—

	1899-1900. Cubic feet.	1900-01. Cubic feet.
Removed by the Forest Department	290,389	252,724
„ by purchasers	34,284	30,511
TOTAL	324,673	283,235
Poles, Bullies, etc.—		
Removed by District Officers	25,576	45,472
„ on free-grants	37,500	37,500
TOTAL	63,076	82,972
Fuel—		
Removed by the Forest Department	1,305,630	1,238,387
„ by purchasers	2,975	3,349
„ by District Officers	111,611	203,216
„ on free-grants	330,000	330,000
TOTAL	1,750,216	1,774,952

Nine hundred and seventy-nine padouk trees were felled, as against 996 in the previous year, yielding 1,434 logs, as against 1,542. During the year 247 tons of padouk were received in London, where the total timber sales were 348 tons of padouk and 95 tons of koko and black chuglam, as against 457 tons of padouk and 33 tons of other timbers in the previous year.

Local sales of timber amounted to 481 tons, as against 460 in the previous year. The amount of firewood furnished to the Settlement was 24,790 tons, while the amount of garjan oil supplied was 56,200 lbs., as against 57,731 lbs. in 1899-1900. This oil was sold at 0-1-0 per lb. The demand for good padouk is at present very satisfactory.

Berar.—The outturn sold for cash in the year compares as follows with 1899-1900:—

	1899-1900 (forest year).	1900-01 (forest year).	1900-01. Increase.	1900-01. Decrease.
Timber . . . . . Cubic feet.	167,911	442,209	274,298	...
Fuel . . . . . „ „	461,974	1,507,329	1,045,355	...
Bamboos . . . . . No., in hundreds.	7,619	20,134	12,515	...
Grass . . . . . Value R .	1,27,034	32,840	...	94,194
Grazing . . . . . „ „	2,29,034	1,20,756	...	1,08,278
Miscellaneous . II.—Minor products, fruits	11,042	22,125	11,083	...
Miscellaneous . III.—Waif wood	209	389	180	...
Miscellaneous . V.—Other sources	5,656	5,399	743	...
Gross revenue per square mile	102	94	...	8
Net revenue per square mile	47	34	...	13

The heavy cotton crop of 1900 increased the demand for fuel, which was and is still good, while famine accounted for the decrease under grass and grazing owing to the heavy cattle mortality.

Minor produce shows favourably, as the mohwa and mango were again sold in 1901 and other products were in demand.

Madras.—The following abstract shows the total outturn of timber and other produce collected during the year, as compared with that of the previous year:—

AGENCY.	Timber including sandalwood. 1899-1900. C. ft.	Timber including sandalwood. 1900-1901. C. ft.	Fuel. 1899-1900. C. ft.	Fuel. 1900-1901. C. ft.	Bamboos. 1899-1900. No.	Bamboos. 1900-1901. No.	Minor produce.* 1899-1900. R	Minor produce.* 1900-1901. R
By Government	567,324	568,039	3,210,384	3,052,275	334,925	318,782	49,365	43,142
By purchasers (including concessions)	2,274,117	2,536,246	11,115,811	11,162,236	27,306,029	29,421,494	10,07,574	10,05,958
By free-grantees	58,280	67,189	9,188	351,343	166,515	196,964	3,063	2,431
By right-holders	1,773	1,671	257,574	257,544	21,289	21,314	40,061	40,149
Total	2,901,594	3,223,145	14,592,957	14,823,398	27,878,758	29,958,554	11,00,163	10,91,680
Increase or decrease in 1900-1901, as compared with 1899-1900	...	+ 321,8 1	...	+ 230,411	...	+ 2,079,796	...	— 8,483
Percentage of increase or decrease over the previous year	...	+ 11·0	...	+ 1·6	...	+ 7·4	...	— 8

* Includes value of grass cut and grazing fees.

The following remarks on the outturn are made by the Madras Government:—

"The total yield of the forests was greater than in the previous year under all heads except that of minor produce. The decrease under the latter occurred in respect of *removals by purchasers*: and, being gauged by the amount of revenue credited in the accounts, it appears to have been but nominal. Departmental sales under the two most important heads of *timber* and *fuel* were in excess of the amounts collected. In the case of *timber* this was largely due to the sales of sleepers fashioned out of the timber felled for the purpose in the previous year. In the case of *fuel*, operations were in many instances restricted on account of the large accumulated stock on hand. Under *removals by purchasers* it is noticed that although the number of bamboos purchased exceeded by two millions those removed in the year before, the value realized fell by nearly R30,000. The reason of this is not clearly explained in the report."

Bombay.—The outturn of produce is shown as follows:—

Circle.	Agency by which material was removed.	Material removed.					Grazing.
		Timber.	Fuel.	Bamboos.	Sandal-wood.	Minor produce.	
		C. ft.	C. ft.	No.	R	R	R
Northern Circle	Government	217,457	154,534	10,045	...	...	23
	Purchasers	1,149,772	4,366,808	1,270,291	...	5,487	13,597
				Cart loads 2,536 *	...	...	...
				Head " 2,968	...	...	...
	Free-grantees	18,241	420	6,450	...	...	1,246
	Right and privilege-holders	...	1,317,492	203,625			
				Cart loads 1,700 *	...	6,608	153,439
				Head " 40,000			
	Total	1,385,470	5,839,254	3,405,731	...	12,098	468,305
Central Circle	Government	393,039	1,441,871	6,514	...	6,774	...
	Purchasers	170,461	802,331	857,893	...	17,217	124,875
	Free-grantees	18,147	406,116	1,775	...	3,378	...
	Right and privilege-holders	...	11,260	...	...	2,568	98,883
	Total	581,650	2,661,578	866,187	...	29,887	223,758
Southern Circle	Government	614,701	4,119,591	47,130	11,956	34,313	...
	Purchasers	617,094	2,498,593	1,882,313	591	23,151	98,484
	Free-grantees	39,020	2,042	18,939	...	23	2,537
	Right and privilege-holders	38,669	9,175,856	88,248	...	16,583	220
	Total	1,309,484	15,796,082	2,016,651	12,547	74,070	101,241
Sindh Circle	Government	202	170,156	...	...	189	...
	Purchasers	248,618	13,051,860	...	...	23,589	35,070
	Free-grantees	3,164	385	...	...	505	5,499
	Right and privilege-holders	...	87,709	...	...	...	27,358
	Total	252,014	13,320,109	...	...	24,283	67,927
All circles combined.	Government	1,225,399	5,816,154	63,689	11,956	44,276	23
	Purchasers	2,185,978	20,729,592	4,795,852	591	69,444	272,026
	Free-grantees	78,572	408,963	27,155	...	3,856	9,222
	Right and privilege-holders	38,669	10,592,317	1,401,873	...	25,759	179,900
	Grand Total for 1900-01	3,528,618	37,647,023	6,288,569	12,547	14[illegible],335	461,231
	Grand Total for 1899-1900	3,709,894	47,571,783	7,691,575	15,063	183,400	709,715

* Assuming 1 cart-load = 300 bamboos, and 1 head-load = 15 bamboos.

In the Northern Circle the amount of timber and fuel removed decreased by nearly 1½ million cubic feet owing to absence of demand in Guzerat and Kathiawar.

The Guzerat forests were kept open for free grazing, which accounts for the figures shown under (i) purchasers and (ii) right and privilege-holders.

In the Central Circle the timber sales, although showing a decided improvement on those of the past year, were still below the average.

In the Southern Circle large stocks of timber and fuel, the outturn of previous years, were still undisposed of, resulting in a decreased outturn as compared with that of 1899-1900.

The effects of famine on the minor produce and grazing revenue were very marked.

CHAPTER IV.

I.—Financial Results.

The gross revenue realized was R1,97,70,493, against R1,90,09,610 in the previous year, and against R1,81,59,902, the average of the previous five years. The surplus was R86,10,453, against R79,84,930 in 1899-1900 and R84,98,918 in the last quinquennial period. Thus the revenue and surplus are the highest yet realized.

The revenue and expenditure for the year under review, compared with the results of the previous two years and of the quinquennial periods since 1873-74 are given below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to Gross Revenue.
	R	R	Per cent.
1873-74 to 1877-78	67,23,191	44,76,303	66
1878-79 to 1882-83	79,15,956	52,09,538	66
1883-84 to 1887-88	1,10,59,434	71,42,382	64
1888-89 to 1892-93	1,51,86,115	82,61,176	55
1893-94 to 1897-98	1,74,50,655	96,57,496	55
1898-99	1,90,38,520	1,00,33,920	53
1899-1900	1,90,09,610	1,10,24,680	58
1900-01	1,97,70,493	1,11,60,040	56

The total revenue of the Bengal Presidency was nearly 2 lakhs in excess of that of the previous year, Burma, the Central Provinces and Bengal showing the most noticeable increases. The revenue of Berar fell by 1¾ lakhs owing to the late famine.

Although the gross revenue in the Punjab showed a decrease, the surplus increased by more than 2½ lakhs. Of the gross revenue of the Bengal Presidency, more than half is still yielded by Burma. The surplus of the Bombay Presidency was nearly double of that of 1899-1900, in spite of a large amount of revenue having been waived on account of famine.

The following table compares the revenue and surplus in each province, with the average realized during the previous five years :—

Provinces.	Revenue.		Surplus.		Deficit.		Proportion of surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1900-01.	Average for preceding five years.	1900-01.	Average for preceding five years.	1900-01.	Average for preceding five years.		
	R	R	R	R	R	R	Per cent.	R
Imperial	2,463	2,910	...	...	81,115	75,226	...	...
Bengal	12,38,339	11,18,012	6,62,533	5,49,796	...	...	53·7	49
North-Western Provinces and Oudh	15,65,463	15,23,122	6,02,024	5,86,830	...	...	38·4	146
Punjab	13,50,842	12,13,178	4,63,499	3,65,070	...	...	34·3	47
Burma	80,54,444	70,90,596	53,99,727	48,65,064	...	...	67·04	58
Central Provinces	9,63,062	8,72,934	32,299	...	...	74,574	3·4	2
Assam	5,49,521	4,42,514	2,01,549	1,38,618	...	...	36·8	10
Coorg	1,37,596	1,35,328	66,691	55,566	...	...	48·5	74
Ajmer	10,646	13,648	...	...	6,136	3,164	...	...
Baluchistan	16,956	15,482	...	...	12,298	15,580	...	...
Andamans	2,77,886	2,83,652	1,37,749	94,592	...	...	49·6	70
Forest School	3,697	3,124	...	...	67,541	63,610	...	...
Forest Surveys (Imperial)	327	368	...	...	33,664	32,396	...	...
Total	1,41,66,242	1,27,21,868	73,65,317	66 55,536	...	...	51·9	43
Berar	3,02,552	4,66,116	67,449	2,25,340	...	...	22·3	17
Total Bengal Presidency	1,44,68,794	1,31,87,984	74,32,766	68,80,876	...	...	51·4	43
Madras	23,40,170	21,92,640	6,24,739	5,32,418	...	...	26·7	32
Bombay	29,61,529	27,79,278	5,52,948	9,85,594	...	...	18·7	37
GRAND TOTAL IN 1900-1	1,97,70,493	1,81,59,902	86,10,453	84,98,918	...	...	43·5	41
" " 1899-1900	1,90,09,610	1,77,15,796	79,84,930	79,19,596	...	...	42·0	40

The following table analyses the receipts and expenditure of the year :—

				Amount. ₹	Proportion of Expenditure to gross Revenue.
Gross Receipts	(a) Wood			1,16,93,795	
	(b) Minor forest produce			23,81,111	
	(c) Forest stamps and commutation fees for forest produce			4,81,810	
	(d) Grazing			12,37,452	
	(e) Revenue from forests not managed by Government			4,03,154	
	(f) Miscellaneous			5,73,171	
	TOTAL REVENUE			1,97,70,493	
				Amount. ₹	Per cent.
Expenditure	A Recurring	(a) Administration.	(i) Superior Staff	22,35,157	11·3
			(ii) Exchange compensation allowance.	85,174	0·4
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).	18,40,455	9·3
			(iv) Office Establishments (including Contingencies.)	9,37,251	4·7
		(b) Working	(1) Extraction	35,63,774	18·0
			(2) Roads and Buildings	4,54,649	2·3
			(3) Fire-protection	3,57,998	1·8
			(4) Cultural operations	3,24,216	1·7
			(5) Live-stock, stores and plant.	3,33,913	1·7
			(6) Working-plans*	67,913	0·3
			(7) Rent for leased forests	1,41,189	0·7
			(8) Miscellaneous	1,37,482	0·7
		(c) Expenditure on realization of revenue from forests not managed by Government.		53,693	0·3
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School).		89,924	0·5
		TOTAL		1,06,32,788	53·7
	B Extraordinary	(e) Forest Settlement		35,203	0·2
		(f) Forest Surveys		3,71,387	1·9
		(g) Forest Demarcation		1,20,662	0·6
		TOTAL		5,27,252	2·7
	GRAND TOTAL EXPENDITURE			1,11,60,040	56·4
	Net Revenue			86,10,453	43·6

* Exclusive of "B" charges.

The table below shows the estimated value of forest produce for which no credit has been taken financially, and which was given away free or at reduced rates to right-holders and under free-grants :—

Provinces.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and grazing.	Total.
	R	R	R	R	R	R
Bengal	11,691	86,266	8,618	31,978	87,406	2,25,959
North-Western Provinces and Oudh	62,948	59,468	939	13,477	58,413	1,95,245
Punjab	39,854	3,64,871	...	48,812	3,05,745	7,59,282
Burma	95,728	21,405	8,076	11,343	45,355	1,81,907
Central Provinces . . .	3,378	24,121	13,611	39,325	1,06,314	1,87,249
Assam	61,090	76,536	7,581	2,27,331	88,331	4,60,869
Coorg	309	...	15	...	2,191	2,515
Ajmer	45	1,013	...	15	14,213	15,286
Baluchistan	695	33	...	6	9,891	10,625
Andamans	24,891	20,136	296	743	...	46,116
Berar	57,964	45,406	20,581	9,639	82,953	2,16,543
Total Bengal Presidency . .	3,58,593	6,99,305	59,717	3,83,169	8,00,812	23,01,596
„ Madras „ . .	6,669	9,873	2,455	39,858	2,722	61,577
„ Bombay „ . .	3,99,287	2,14,055	26,389	4,102	3,03,802	9,46,635
Grand Total .	7,64,549	9,23,233	88,561	4,27,129	11,06,336	33,09,808
Total, 1899-1900 . . .	3,57,042	7,98,574	1,10,637	4,61,022	9,22,231	26,59,506

The large increase under timber and fuel is due to grants made in Bombay, where nearly 4½ lakhs of rupees were given away in excess of the figures of the preceding year, while under grass and grazing, the figures of 1900-01 are more than 2½ lakhs of rupees greater than those of 1899-1900. The total figures shown by Bombay are :—

	R
1899-1900	2,14,000
1900-01	9,46,000

CHAPTER V.

I.—Establishment.

During the year under review, seven officers of the Imperial Service retired, and there were two deaths and three retirements amongst the members of the Provincial Service. Of the 19 permanent Conservators, 11 remained on duty throughout the year, 7 went on leave, and Mr. H. C. Hill continued on deputation to the Straits Settlements till September 1900. To meet the increasing demands for the services of Forest Officers for Native States and Colonial and Foreign Governments, two additional posts of Deputy Conservators, one of the 3rd and one of the 4th grade, were created, thus raising the total sanctioned strength of Deputy and Assistant Conservators to 191 officers for all India. Out of this number, 127 remained on duty throughout the year. Seven officers of the Imperial Service, and nine of the Provincial Service, were on foreign service for the whole or for parts of the year. Messrs. McDonell and Mayes continued on deputation in Kashmir, Mr. Pigot in Mysore, and Messrs. Slade and Tottenham in Siam. Mr. Muriel was employed in the Soudan for one year from November 1900 while on furlough. The Review for 1899-1900 showed that 26 appointments had been transferred from the Imperial to the Provincial Service, leaving 17 appointments still to be transferred. No fresh transfers were made in the year under review.

The re-organization of the clerical establishments which had been contemplated for many years was introduced, except in the Bombay Presidency. The net financial effect of this scheme, which strengthened and improved the prospects of the clerks, was an extra expenditure of R5,780-8-0 a month.

II.—Experiments.

Exotics.—In the Punjab and North-Western Provinces, the experimental sowings of the cluster pine are reported to have met with fair success. The *Robinia pseudo acacia*, sown in 1893-94 in the Jhelum district, have reached a height of 14 to 20 feet and are doing well, while the Spanish chestnut continues to succeed in Kulu and Bashahr and its cultivation is being extended.

Rubber.—In Assam, the Charduar rubber plantation to which 80 acres were added during the year has been noticed in a previous paragraph. The yield of rubber in the Kulsi plantation, in the Kamrup Division, which was well looked after, was 28·8 lbs. of good rubber as against 9 obtained from the Charduar plantation. In the Mergui plantation, in the Tenasserim Circle, 4,115 new plants were put out, chiefly of *Hevea braziliensis*; 1,436 young trees were tapped, yielding about 10 ounces per tree. The rubber was sold at an average of 2 shillings and 8 pence per lb. Small experiments were also made with rubber plants in Tavoy, but it is as yet too early to report results. In the Pegu Circle, 502 creepers of *Chevanessia esculenta* were tapped, yielding 23 lbs. of latex. Sample latices of different species are in progress of examination by the Reporter on Economic Products, but no definite conclusions have yet been arrived at.

In Bengal, the cuttings of *Ficus elastica* planted out in the previous year are doing well. The Conservator notes as follows on the *Hevea braziliensis*:—

"Of the seedlings resulting from the seed sown in 1899, some of which had attained 8 feet in height and 2½ inches in girth, 285 have been put out from the Sukna Nursery into the forest. Last year's consignment from Peradeniya consisted of 9,000 seeds, 3,000 being

distributed to each of the three Divisions—Kurseong, Jalpaiguri and Buxa. In the Kurseong Division, the seeds were sown in the nursery, and in June last there were 1,107 healthy thriving plants over 12 inches high; in the Jalpaiguri Division sowings were made near to Ramsai Hat in the Jaldaka mixed forest, but only 201 plants are now alive. In the Buxa Division, the seed was first sown in the Rajabhatkhawa nursery, where it germinated well. The resulting seedlings were transplanted in June into the Dima forest.

Nine thousand fresh seeds are now on their way from Ceylon."

A sample of 248 maunds of the fibre of *Phœnix paludosa* was supplied to the Titaghur paper mills; it was, however, badly reported on, and the cost of production is at present too high to render it of much practical value.

Lac.— Thirteen tons were exported from the Northern Circle, Central Provinces. Little is reported to have been collected in the Berar forests, and, owing to financial depression, little was done to propagate the product. In the School Circle of the North-Western Provinces, the lac experiment was not extended as the season was unfavourable: 804 lbs. of crude lac were collected.

In the Central Provinces, Tassar silk cultivation was at a standstill, the climate of the Northern Circle was found to be not favourable for its development, while owing to famine nothing was done in the Southern Circle.

The Reporter on Economic Products writes as follows with reference to a sample of Gum Kino sent him by the Conservator, Northern Circle:—

"It has the reddish black colour described in the British Pharmacopœia. It was practically soluble in distilled water and also in alcohol, the woody débris not exceeding one per cent. The ash was normal in amount (1·75 per cent.), white in colour, and contained only a trace of iron. Two-thirds of the kino consisted of pure tannic acid. The juice is of fair quality and appearance, and should answer the requirements of the home markets and the medical profession by whom it is employed."

In the Central Circle of the North-Western Provinces, small quantities of *tannin extract* were made from sâl bark and sent to the factories at Cawnpore, but it was found that the cost of preparation was prohibitive.

Resin.—The tapping of the *Pinus longifolia* was carried out in the Central and School Circles of the North-Western Provinces, and in the Kangra Division of the Punjab.

The following tables show the results in the three localities:—

	Number of trees tapped.	Yield of crude resin.	
		Maunds	
School Circle, North-Western Provinces . .	15,198	2,477	
Central Circle „ „ „ . .	22,267	1,454	
Kangra, Punjab	58,699	6,263	
TOTAL .	96,164	10,194	

The outturn of turpentine and colophony from the 3 localities is shown as follows:—

	Turpentine	Colophony	
	Gallons.	Maunds.	
School Circle, North-Western Provinces . .	2,968*	1,375*	* From 1,781 maunds of resin.
Central Circle „ „ „ . .	1,625	817	
Kangra, Punjab	7,762	3,672	
TOTAL .	12,355	5,864	

In the School Circle, the profit is stated to have been R3,085; in the Central Circle R5,765; these figures, however, are calculated on a different basis.

In the Punjab, the industry is stated to have been profitable, but the figures given do not clearly show the profit of the year.

III.—Exports of Forest Produce.

The following table gives the amounts and value of various forest products exported from India during the financial year 1900-01, as given in the Foreign Trade Report compiled in the Statistical Department:—

Articles of Forest produce.	Quantity in tons of 20 cwt.; in the case of Teak, cubic tons.		Valuation at Port of Shipment in 1900-01.	
	Average of five years 1895-96 to 1899-1900.	In 1900-01.	Total.	Per ton.
			R	R
Caoutchouc	333	385	15,47,836	4,020
Lac—Button	1,660	1,472	13,95,469	948
Lac—Shell	8,694	9,666	91,02,207	942
Lac—Stick and other kinds	130	216	1,56,294	723
Lac-dye	4 cwt.	1 cwt.	14	14 per cent.
Sandal, ebony and other ornamental woods	Information	not available	10,77,373	...
Cutch and gambier	4,704	5,100	18,91,477	371
Myrabolams	45,496	47,282	31,68,173	67
Teak	72,960	74,363	86,91,503	117
Cardamoms	61	55	1,86,748	3,395
Total in 1900-01	...	...	2,72,17,094	...
„ „ 1899-1900	...	...	2,93,94,923	...
Decrease in 1900-01	...	...	21,77,829	...

Comparing these figures with those of the previous year (which were somewhat exceptionally high), it appears that the export of lac fell off by nearly 600 tons, cutch and gambier by 1300 tons and cardamoms by 30 tons.

The valuation at port of shipment fell slightly in the case of lac, cutch and cardamoms, while it increased in the case of caoutchouc, remaining the same for teak.

IV.—Technical Education and Recruitment.

Six young officers, having completed their course of training at Cooper's Hill College, came out to India towards the end of 1900, and joined the Imperial Service Staff. They were posted, 3 to Madras, 1 to Bengal, 1 to the Punjab, and 1 to Burma.

The course of training at Cooper's Hill College for the Imperial Service remained under the guidance of Dr. Schlich, C.I.E., assisted by Mr. W. R. Fisher, and during the year seven candidates were selected by competition to undergo the course.

The Forest School at Dehra continued to be largely utilized by the various Provinces, with the exception of Bombay, as a training ground for their men. The Government of India resolution thus reviews the work of the year:—

"Mr. J. W. Oliver held the post of Director of the Imperial Forest School throughout the year, and the only important changes in the regular staff took place at the beginning of the new

courses in April, when Mr. R. McIntosh, M. A., succeeded Mr. A. M. F. Caccia as Senior Instructor, and Mr. B. O. Coventry, F.O.H., became Instructor in place of the former officer. With the sanction of the Secretary of State, Mr. E. P. Stebbing was appointed Forest Entomologist for a period of two years, and was attached to the School staff.

Fewer candidates presented themselves at the entrance examination than in the previous year, and the percentage of those passing the test was lower. Of the 50 candidates who qualified, 26 were admitted to the School, together with 5 who had passed in previous years, 3 students with University degrees exempting them from the entrance test, and 4 students deputed by the Government of Siam, making 38 admissions in all to the Upper Class, of which 14, or 37 per cent., were private students. The standard of general education possessed by the candidates admitted to the Upper Class was satisfactory, as is shown by the details given on the margin.* The number of students admitted to the Lower Class was 8. The total number of students attending the School on the 30th June 1901 was 97, as compared with 99 at the close of the previous year.

* 7 Bachelors of Arts.
7 passed First Arts Examination.
16 Matriculates.
6 holders of School final certificates.
2 qualifications not stated.

At the final examinations held in March 1901, four out of 37 Upper Class students failed to pass, the rest obtaining the Higher Standard certificate including one with Honours. There were no failures amongst the Lower Class students, who thus all obtained the Lower Standard certificate. These results show a considerable improvement when compared with those of the preceding year, and they reflect credit upon the School officers."

The results of the School teaching, as compared with those of the previous 5 years, are thus summarized by the Director, who also gives an interesting table embodying the subsequent careers of passed students :—

Year.	Number of students attending final examination.			Results of the final examinations.									Percentage of failures.
				Honours.			Ordinary Certificate.			Failed.			
	Private.	Paid.	Total.	Private.	Paid.	Total.	Private.	Paid.	Total.	Private.	Paid.	Total.	
Upper Class.													
1896 . . .	9	28	37	...	...	...	7	22	29	2	6	8	22
1897 . . .	9	15	24	...	1	1	9	14	23	...	...	...	...
1898 . . .	9	19	28	1	1	2	5	13	18	3	5	8	29
1899 . . .	10	12	22	...	1	1	9	11	20	1	...	1	4
1900 . . .	15	16	31	...	...	...	14	10	24	1	6	7	23
1901 . . .	26	11	37	1	...	1	21	11	32	4	...	4	11
Total .	78	101	179	2	3	5	65	81	146	11	17	28	...
Lower Class.													
1896 . . .	6	2	8	...	...	...	3	2	5	3	...	3	37
1897 . . .	4	5	9	...	...	...	3	5	8	1	...	1	11
1898 . . .	2	7	9	...	...	...	2	7	9	...	...	...	...
1899 . . .	3	3	6	1	..	1	2	3	5	...	...	...	...
1900 . . .	6	4	10	1	...	1	4	2	6	1	2	3	30
1901 . . .	5	3	8	...	...	...	5	3	8	...	...	...	...
Total .	26	24	50	2	...	2	19	22	41	5	2	7	...
GRAND TOTAL .	104	125	229	4	3	7	84	103	187	16	19	35	...

"Since 1881 Higher Standard Certificates have been granted to 424 students, and Lower Standard Certificates to 126 students. The following table embodies the available information in regard to their subsequent careers" :—

		Higher Standard Certificate.	Lower Standard Certificate.
FOREST DEPARTMENT, INDIA AND MADRAS—			
Deputy Conservators	2	2	...
Extra-Deputy Conservators	4	4	...
Extra-Assistant Conservators	91	90	1
Rangers	229	191	38
Deputy Rangers	58	16	42
Forestors	4	1	3
	388		
Commission	5	4	1
Police	2	2	...
Ceylon Forest Department	3	3	...
Forest Department of Native States	74	61	13
Left the service	18	12	6
Deceased	37	22	15
No information available	23	16	7
Total	550	424	126

The total expenditure on the School for the year was R72,559 against R73,550 in the previous year. Referring to the Tharrawaddy Forest School the Conservator, Pegu Circle, writes as follows :—

"The Tharrawaddy Forest School was efficiently supervised by the Instructor, Mr. E. M. Buchanan, Extra-Deputy Conservator of Forests, assisted by Hatim Tai, Forest Ranger.

It was found necessary, in view of the results obtained during the first year of its existence, to revise the course of instruction with a view to more stress being laid on actual practical work in the field, and the course was extended from 18 months to two years, the second year being entirely devoted to practical work in the forests.

In addition the School has been thrown open to Deputy Rangers and Rangers, and the number of students to be admitted annually raised from 8 to 12.

At the final examinations held in November 1900, out of eight students, two obtained the higher certificate, four the lower and two failed altogether.

At the final examinations in June 1901, only six students appeared, one having absconded and one having been removed for misconduct. Of these, two obtained the higher certificate, three the lower, and one failed to qualify.

In each case, the senior student of the year was a private student with no previous knowledge of Forestry."

At the Poona College of Science, 15 of the 16 students who presented themselves passed the final examination held in January 1901. It has been found, however, that the system of recruitment through the Poona College is not in all respects satisfactory, and the question of deputing their candidates to Dehra Dun in place of training them at Poona is engaging the attention of the Government of Bombay.

V. FOREST ADMINISTRATION IN NATIVE STATES.

At the time of going to the press reports have been received from Kashmir and Jodhpur only.

Jammu and Kashmir.—The State forests remained under the control and management of Mr. McDonnell. The estimated area is 2,179 square miles, somewhat less than in the previous year owing to exclusions in Jammu. Much of this forest is unexamined and is believed to consist largely of waste areas containing little tree growth. Though some progress was made in demarcation, much yet remains to be done and is urgently called for in the interests of the preservation of the forests. Another matter that calls for early attention

is the preparation of working-plans, as without these it is quite impossible to estimate even approximately the annual yield of the forests.

The total number of forest offences reported fell from 685 in 1899-1900 to 358, though the reason for this large decrease is not clearly explained.

The area burnt was less than half what it was in the previous year, namely, 4,164 acres against 10,637 acres, the number of separate fires being 70. This is a not unsatisfactory result, considering that no special measures of fire-protection are in force, and that none of the most valuable deodar areas were burnt.

In the more favoured localities, natural reproduction is reported as excellent, but in many places where there have been reckless fellings in the past, little can be expected in the way of regeneration. The total outturn of the forests was much as in the previous year, about 36,000,000 cubic feet, of which nearly 31,000,000 cubic feet were given away free, chiefly in the shape of fuel. Sleeper works were considerably restricted owing to want of demand on the part of the North-Western Railway.

The price paid by the Railway was Rs. 3 for each broad-gauge sleeper, while sleepers sold to the public fetched an average of Rs. 2-3-3. The average rate compares unfavourably with that of the preceding year and the revenue returns in consequence showed a considerable decrease.

The gross revenue fell from Rs. 10,00,804 to Rs. 8,82,780, the surplus being Rs. 5,88,157 as against Rs. 6,38,396 in 1899-1900.

This diminished surplus is doubly unfortunate at the present moment when liberal expenditure is called for on works of improvement and on suitably manning the controlling staff, which is much below requirements.

The subordinate staff is still underpaid, with the result that recruitment is unsatisfactory and is likely to remain so until the State is in a position to hold out better prospects to suitable men.

Jodhpur State.—The area of reserved forests remained at 343 square miles.

It is gratifying to note that good progress was made in surveys and boundary work. The number of cases compounded fell from 582 in 1899-1900 to 225. The explanation given for this large decrease is abundant fodder outside the reserves.

The effects of famine continued to be apparent, and the extensive grazing concessions were continued until the break of the rains.

Fire conservancy was successful, there having been three small fires only, aggregating 220 acres. Some attention was paid to natural regeneration, it being stated in the report that 100 acres were sown with babul seed and 4,000 bamboo rhizomes put down with satisfactory results.

The outturn of timber and fuel appears to have been 3,67,232 cubic feet as against 5,06,071 cubic feet in the previous year. Demand was indifferent and traders had extensive stocks on hand.

The total revenue realized was R19,698, against an expenditure of R19,322, yielding a surplus of R376 as against a deficit of R5,288 in 1899-1900.

Summary of the Revenue and Expenditure of the

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	United Provinces of Agra and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	540	80,159	5,62,249	10,24,839	27,34,144	6,68,267	2,86,365	73,661	1,01,533	2,916	5,045
II.—Timber and other produce removed from the forests by consumers or purchasers.	1,923	10,98,769	9,34,430	2,46,813	12,43,564	27,70,806	6,13,339	3,43,991	34,768	7,268	1,534
III.—Drift and waif wood and confiscated forest produce.	...	5,725	10,347	35,260	1,58,211	29,419	1,917	5,543	270	79	1
IV.—Revenue from forests not managed by Government.	...	...	8,342	5,823	2,99,630	...	...	74,934	...	...	10,105
V.—Miscellaneous	...	48,695	49,595	38,057	57,761	42,589	61,441	51,492	975	383	221
Total Revenue .	2,463	12,33,339	15,65,463	13,50,342	45,43,863	35,11,081	9,63,062	5,49,521	1,37,596	10,646	16,956
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	...	64,703	2,52,932	3,78,409	5,05,812	2,98,694	1,28,670	13,032	12,025	1,084	2,704
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	59,986	19,887	806	23,228	46,184	55,689	3,529	...	59	...
III.—Drift and waif wood and confiscated forest produce.	...	1,931	5,939	9,315	82,323	24,179	14	85	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	3,325	...	20,280	...	...	29,104	...	...	484
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	...	31,188	33,519	...	...	...	11,181	...	...	...
VI.—Live-stock, stores, tools and plant .	...	14,318	19,629	5,839	42,912	39,733	14,523	31,486	433	234	16
VII.—Communications and buildings .	...	48,495	97,434	54,936	34,712	44,249	15,683	24,515	3,436	1,470	146
VIII.—Demarcation, improvement, and extension of forests.	...	57,369	98,950	54,659	2,23,634	1,60,642	1,19,428	33,766	10,563	2,521	48
IX.—Miscellaneous	...	5,178	4,377	1,826	7,901	7,643	4,583	4,138	1,111	81	96
Total A.—Conservancy and Works .	...	2,52,030	5,34,161	5,39,329	10,30,805	6,16,324	3,38,600	1,43,836	27,628	5,449	3,494
B.—Establishmnets.											
I.—Salaries	65,440	2,60,974	3,53,734	2,78,610	4,06,225	4,27,932	4,82,941	1,64,102	35,009	9,711	22,286
II.—Travelling allowances . . .	14,124	43,689	46,280	45,507	59,518	66,852	46,335	25,797	6,620	611	2,674
III.—Contingencies	4,014	14,113	29,264	23,867	28,221	18,843	2,887	9,237	1,648	1,011	800
Total B.—Establishmnets .	83,578	3,18,776	4,29,278	3,47,984	4,93,964	5,13,627	5,32,163	1,99,136	43,277	11,333	25,760
Grand Total of Expenditure .	83,578	5,70,806	9,63,439	8,87,313	15,24,766	11,29,951	8,30,763	3,47,972	70,905	16,782	29,254

DIX I.

Forest Department in India for the year 1900-1901.

Territories). Andamans.	Forest School.	Forest Surveys (Imperial).	Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand total.	Budget Heads.
R	R	R	R	R	R	R	R	R	REVENUE.
2,75,129	...	...	58,64,947	5,06,886	16,53,145	80,24,978	...	80,24,978	I.—Timber and other produce removed from the forests by Government agency.
2,232	...	...	72,19,478	17,10,929	12,08,231	1,02,18,638	2,97,069	1,05,15,707	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...		2,46,772	11,963	8,084	2,66,819	380	2,67,199	III.—Drift and waif wood and confiscated forest produce.
...	...	...	3,99,284	...	3,870	4,03,154	...	4,03,154	IV.—Revenue from forests not managed by Government.
525	3,697	327	3,55,761	1,10,392	88,199	5,54,352	5,103	5,59,455	V.—Miscellaneous.
2,77,886	3,697	327	1,41,66,242	23,40,170	29,61,529	1,94,67,941	3,02,552	1,97,70,493	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
92,659	...	...	18,35,724	2,98,663	9,26,445	30,60,832	...	30,60,832	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	2,09,368	1,02,755	39,115	3,51,238	26,081	3,77,319	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,23,836	1,472	315	1,25,623	...	1,25,623	III.—Drift and waif wood and confiscated forest produce.
...	..	...	53,693	...	...	53,693	...	53,693	IV.—Revenue from forests not managed by Government.
...	...	...	75,888	17,915	31,828	1,25,631	15,558	1,41,189	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
19,167	1,351	859	1,90,555	63,699	77,641	3,31,895	3,369	3,35,264	VI.—Live-stock, stores, tools and plant.
4,545	...	483	3,30,159	83,251	27,856	4,41,266	13,383	4,54,659	VII.—Communications and buildings.
169	...	5,787	7,65,541	2,72,639	2,21,347	12,59,527	17,852	12,77,379	VIII.—Demarcation, improvement, and extension of forests.
1,356	3,051	38	41,384	6,835	98,437	1,46,656	3,877	1,50,533	IX.—Miscellaneous.
1,17,896	4,402	7,167	36,26,148	8,47,229	14,22,984	58,96,361	80,120	59,76,481	Total A.—Conservancy and Works.
									B.—Establishments.
19,863	57,375	18,478	26,02,680	6,65,333	8,17,599	40,85,662	1,25,566	42,11,228	I.—Salaries.
1,856	5,993	205	3,66,066	1,47,125	1,22,009	6,35,200	17,916	6,53,116	II.—Travelling allowances.
522	3,463	8,141	2,06 031	55,694	45,989	3,07,714	11,501	3,19,215	III.—Contingencies.
22,241	66,836	26,824	31,74,777	8,68,202	9,85,597	50,28,576	1,54,983	51,83,559	Total B.—Establishments.
1,40,137	71,238	33,991	68,00,925	17,15,431	24,08,581	1,09,24,937	2,35,103	1,11,60,040	Grand Total of Expenditure.
1,37,749	...	...	73,65,317	6,24,739	5,52,948	85,43,004	67,449	86,10,453	Surplus.
...	67,541	33,664	...	...	...	...	...	...	Deficit.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1876-7 to 1900-1.

REVENUE.

Provinces.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-1.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial† .	2,490	1,36,772	16,716	17,214	18,887	27,407	30,732	32,907	26,574	14,708	4,186	4,847	4,017	4,759	6,370	6,688	5,240	2,680	4,980	2,690	4,100	19,130	17,540	6,090	2,463
Bengal . .	2,22,401	4,25,228	4,16,027	4,49,524	5,61,340	6,33,734	6,93,959	6,94,334	5,71,152	5,97,432	6,53,634	6,57,794	6,76,907	7,63,718	7,27,392	7,89,553	7,44,880	8,01,610	7,95,670	9,18,710	13,70,850	11,93,230	9,72,310	11,38,910	12,33,339
North-Western Provinces and Oudh . .	11,50,671	12,03,108	11,26,755	10,39,966	9,42,228	10,66,094	10,13,403	16,11,383	15,72,319	14,61,495	15,73,556	12,47,454	14,62,802	17,14,159	16,37,879	17,31,514	16,52,540	17,09,860	16,58,250	16,01,340	14,44,820	13,86,670	15,68,040	16,14,740	15,65,163
Punjab . .	5,98,754	6,83,711	5,00,619	6,49,819	6,71,678	6,88,308	7,66,709	9,10,177	7,49,352	8,50,419	11,27,277	7,86,936	10,45,768	9,21,713	8,34,370	10,20,074	8,12,630	9,13,300	10,32,430	10,14,520	11,07,720	10,68,470	14,74,430	14,00,770	13,50,842
Burma (Lower)	15,51,406	16,03,082	11,37,562	11,80,190	15,16,613	22,31,804	25,03,896	25,09,275	16,70,982	20,23,859	19,96,667	22,18,897	26,09,305	31,31,716	26,77,671	28,58,114	35,83,370	34,89,350	32,74,200	34,14,550	38,18,270	40,85,200	42,22,560	43,05,230	45,43,363
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	1,08,074	2,96,876	15,79,928	18,06,070	16,44,287	13,27,300	20,76,630	22,95,750	21,62,580	22,81,280	25,60,680	31,29,060	41,27,930	35,06,820	35,11,081
Central Provinces . .	6,61,326	6,83,910	8,52,862	10,06,724	8,50,130	11,72,884	9,77,647	9,94,769	10,27,202	10,36,894	9,57,419	10,93,369	11,80,405	11,56,181	12,13,461	13,59,900	12,36,850	11,34,480	10,08,630	9,96,940	7,73,320	7,80,050	9,95,100	8,19,260	9,63,062
Assam . .	81,568	1,34,326	1,61,779	1,64,335	1,68,997	1,66,054	2,48,605	2,11,445	1,80,414	1,96,656	2,12,011	2,67,312	3,03,882	3,79,498	3,26,793	3,36,120	3,82,830	4,88,500	4,35,090	4,25,030	4,36,440	3,84,820	3,98,180	5,68,100	5,49,521
Coorg . .	75,927	1,01,015	52,020	1,01,786	87,857	1,00,364	1,39,022	87,822	1,13,233	89,386	99,291	1,27,028	1,36,183	92,753	1,35,561	1,82,897	1,80,680	1,73,790	1,53,050	1,35,250	93,000	1,30,910	1,55,070	1,02,410	1,37,593
Ajmer . .	965	3,002	1,241	1,861	1,124	4,065	7,126	8,198	10,456	9,697	11,274	14,293	13,574	11,592	15,266	19,799	14,890	14,620	12,840	15,640	12,370	15,540	14,420	10,270	10,616
Forest Surveys (Imperial) .	...	...	63	38	272	...	343	36	234	202	241	40	315	220	2,101	257	520	240	80	510	400	220	290	420	327
Forest School .	...	...	...	...	...	...	...	...	73	273	415	777	449	1,237	1,184	1,783	1,980	1,990	2,790	4,310	2,850	2,890	2,360	3,210	3,697
Andamans .	4,679	1,301	5,564	2,437	27,734	48,407	70,858	24,762	12,213	23,944	31,370	1,04,062	1,06,075	1,62,195	1,58,326	2,72,338	3,60,490	4,81,790	1,14,530	1,32,120	3,62,370	4,33,710	2,29,460	2,60,600	2,77,896
Total .	43,50,129	49,76,458	42,71,208	46,13,694	48,46,869	61,39,121	64,51,305	70,85,108	59,44,204	63,01,965	67,77,906	68,19,685	81,19,610	1,01,53,811	93,80,674	99,06,351	1,10,47,530	1,14,67,960	1,06,55,120	1,09,42,870	1,19,87,190	1,26,26,950	1,41,78,090	1,37,96,830	1,41,49,226
Madras . .	5,92,573	5,50,310	6,06,788	6,26,168	7,36,880	8,06,908	9,06,442	9,53,704	11,66,916	11,98,650	12,46,911	13,74,920	15,15,006	15,57,627	17,95,408	16,94,216	15,77,210	19,47,180	18,94,030	21,10,570	23,03,330	21,36,490	21,10,520	23,02,290	23,40,170
Bombay . .	12,26,658	12,61,521	11,81,894	15,24,712	15,22,807	18,28,117	20,90,353	25,03,100	27,74,842	33,66,286	30,32,676	30,36,577	28,50,190	31,37,696	32,88,220	32,84,649	32,69,550	37,94,350	37,50,030	35,36,670	30,32,710	26,16,660	22,95,150	24,15,200	29,61,523
Total (British India) . .	61,69,360	67,88,293	60,59,890	67,64,774	71,06,556	87,74,146	94,48,100	1,05,41,912	98,85,962	1,08,69,901	1,10,57,493	1,12,27,182	1,31,84,806	1,48,49,134	1,44,64,302	1,48,85,216	1,58,94,290	1,72,09,490	1,62,99,180	1,65,90,110	1,73,23,230	1,73,80,100	1,85,83,760	1,85,14,320	1,94,50,985
Berar . .	2,53,072	2,79,236	2,88,704	3,07,500	2,66,556	2,33,511	2,92,014	3,08,218	2,97,185	3,10,851	3,26,261	4,06,447	4,07,977	4,40,541	4,87,109	5,11,185	4,31,020	4,82,800	4,73,400	4,94,340	5,17,820	4,00,350	4,39,840	4,78,230	3,02,552
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	934	631	651	596	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	...	14,376	18,616	5,030	4,752	6,089	14,962	14,081	14,063	5,668	13,897	15,724	20,609	19,030	20,736	16,300	14,930	15,460	15,040	13,530	17,060	16,956
Grand Total.	64,22,432	70,67,529	63,48,594	70,72,274	73,87,488	90,26,273	97,45,153	1,08,54,882	1,01,90,170	1,12,65,345	1,13,98,436	1,16,48,288	1,36,58,451	1,53,03,572	1,49,67,135	1,54,17,010	1,63,44,340	1,77,13,020	1,67,88,880	1,70,99,380	1,78,56,510	1,77,95,490	1,90,38,520	1,90,09,610	1,97,70,493

* The figures in this statement have been revised by the Comptroller and Auditor-General.
† Includes certain home receipts and undistributable and petty local items.

EXPENDITURE.

Provinces.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-1.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	44,004	98,099	63,956	73,910	65,291	77,635	87,263	98,266	96,306	93,215	86,299	78,626	86,199	81,311	85,414	65,783	1,07,270	80,340	84,950	80,410	78,960	84,300	85,460	90,550	83,578
Bengal	2,19,497	2,62,913	3,38,675	2,75,748	3,35,381	3,94,612	3,82,183	3,87,313	4,11,915	3,70,399	4,22,761	3,90,368	3,76,270	3,98,150	4,14,004	4,22,930	3,81,610	4,01,040	3,97,390	4,36,070	6,90,340	6,53,440	4,86,320	5,45,210	5,70,806
North-Western Provinces and Oudh	8,61,362	7,28,926	8,09,977	7,16,594	6,79,574	9,16,212	8,39,025	10,41,885	10,20,101	9,74,519	9,19,580	8,20,748	8,44,514	9,63,151	9,19,195	9,58,211	9,28,540	9,63,020	9,35,310	9,42,860	9,06,340	9,17,850	9,72,030	9,42,330	9,63,439
Punjab	5,25,059	5,20,631	5,23,554	4,80,676	4,95,368	5,16,269	5,60,750	6,53,116	5,58,070	6,75,483	7,16,510	6,77,912	5,93,895	6,45,855	6,53,041	6,40,278	6,56,270	6,36,430	7,22,120	6,78,420	7,23,300	7,71,940	8,55,340	12,11,460	8,87,343
Burma (Lower)	10,05,554	8,58,231	7,18,402	7,53,490	7,12,563	11,50,224	1,12,28,955	12,17,824	12,12,233	11,50,952	10,75,830	10,32,694	12,31,944	13,32,844	10,86,474	13,25,121	13,63,250	13,41,640	13,78,230	13,57,740	15,03,290	15,04,110	15,29,570	15,01,470	15,24,766
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,85,129	2,73,800	3,02,315	3,73,356	4,41,750	5,20,860	5,39,760	5,75,860	6,25,530	7,92,500	8,96,620	9,45,970	11,22,951
Central Provinces	2,90,295	3,22,034	3,93,758	5,22,571	4,95,512	4,97,013	4,12,247	4,36,058	4,95,821	4,45,432	4,99,293	5,52,939	6,68,697	6,96,445	7,35,554	8,03,915	8,51,400	9,32,190	9,76,060	9,52,340	9,50,990	9,21,440	8,71,330	10,41,440	9,30,763
Assam	90,520	1,01,153	1,26,628	1,32,329	1,42,725	1,65,361	1,71,823	1,99,562	1,97,699	2,11,494	2,12,237	2,26,892	2,09,905	2,57,129	2,63,852	2,67,525	2,64,070	2,68,220	2,72,010	2,86,140	2,82,010	2,88,830	3,05,360	3,57,140	3,47,272
Coorg	33,692	36,268	34,829	55,165	56,187	59,796	64,770	75,023	76,951	65,690	71,088	72,629	80,175	72,420	65,818	85,850	73,090	86,890	86,140	85,840	71,630	87,020	80,100	74,220	70,905
Ajmer	22,460	14,926	13,445	13,750	12,423	13,954	11,284	14,574	16,316	16,469	20,744	18,897	15,676	12,701	12,770	13,986	15,000	15,900	14,900	15,730	22,010	14,670	16,200	15,250	16,782
Forest Surveys (Imperial)	58,929	60,165	60,325	46,873	40,335	42,489	41,505	30,940	19,923	19,180	28,348	32,803	22,161	21,188	24,324	26,833	22,100	27,900	29,840	29,950	31,970	33,950	33,970	33,980	33,901
Forest School	...	...	...	...	...	...	...	...	22,568	24,239	30,831	33,129	32,961	9,636	35,191	44,347	50,400	65,530	65,980	67,950	67,380	60,920	63,370	73,550	71,236
Andamans	1,307	1,096	...	1,177	2,160	2,306	1,810	12,161	22,760	37,085	25,769	62,679	57,285	94,975	1,30,052	1,79,909	2,31,210	2,44,550	1,22,780	1,02,020	3,16,000	2,87,240	1,38,400	1,40,940	1,40,187
Total	31,48,279	30,04,442	30,82,949	30,78,691	30,37,824	38,35,671	38,01,740	41,67,252	41,50,563	40,79,137	41,14,548	41,31,533	50,04,844	48,79,615	47,47,954	52,09,608	53,86,920	55,88,010	56,26,470	56,41,330	62,70,050	62,78,310	63,34,170	69,79,660	67,71,671
Madras	6,35,560	5,65,624	4,95,914	5,48,527	5,19,270	6,03,419	6,45,352	7,86,733	8,96,505	9,37,972	11,53,122	11,29,212	12,20,794	11,61,237	12,46,913	13,24,254	13,30,390	13,62,770	13,86,350	14,45,610	15,34,300	15,72,850	15,94,670	16,53,530	17,15,431
Bombay	8,38,979	8,77,716	10,04,923	10,76,989	11,67,347	11,69,131	12,78,770	15,64,172	17,78,723	18,30,461	19,52,910	19,44,005	16,93,962	17,70,691	18,69,887	19,31,457	19,04,970	20,71,940	20,67,920	19,58,390	19,69,160	20,73,100	18,39,250	21,28,430	24,68,581
Total (British India)	46,22,818	44,47,782	45,83,736	47,04,207	47,24,441	56,08,471	57,25,862	65,18,157	68,25,791	68,56,570	72,20,580	72,04,750	79,19,600	78,11,543	78,64,754	84,65,319	86,21,280	90,22,720	90,80,740	90,45,330	97,73,510	99,24,350	97,68,090	1,07,61,620	1,06,95,683
Berar	94,652	1,09,968	1,07,350	1,10,506	1,28,968	1,52,985	1,55,054	1,56,779	1,52,649	1,59,242	1,71,704	1,83,765	1,70,212	1,76,549	1,68,921	1,98,366	2,29,230	2,54,250	2,51,640	2,45,510	2,41,870	2,44,050	2,38,070	2,34,380	2,35,102
Forest Surveys (Berar)	...	...	...	...	...	...	...	15,013	34,801	42,940	45,472	42,098	23,955	6,464	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	16,416	17,682	11,562	16,911	13,266	15,799	17,836	17,753	15,094	17,962	29,450	30,497	55,620	63,730	46,910	41,770	29,770	27,320	27,760	28,680	29,254
Grand total	47,17,470	45,57,750	45,91,136	48,14,713	48,69,825	57,79,138	58,92,878	67,06,890	70,26,510	70,74,551	74,55,592	74,48,366	81,29,761	80,12,518	80,63,125	86,94,182	89,06,230	93,40,700	93,73,290	93,32,619	1,00,45,150	1,01,95,730	1,00,33,930	1,10,23,680	1,11,00,040

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

STATEMENT II—*concluded.*

SURPLUS.

Provinces.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-1.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	−41,514	38,673	−47,240	−56,596	−46,404	−50,228	−56,536	−65,359	−69,732	−73,537	−82,113	−73,779	−82,182	−76,552	−79,044	−59,100	−1,02,030	−78,150	−79,970	−77,720	−74,360	−65,170	−67,920	−90,460	−81,115
Bengal	7,994	1,63,315	77,252	1,73,776	2,25,959	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,426	3,00,537	3,70,568	3,13,388	3,66,623	3,63,270	3,97,570	3,98,280	4,52,640	6,80,810	5,35,840	4,85,990	5,93,700	6,62,533
North-Western Provinces and Oudh	2,80,309	4,74,182	3,16,778	3,23,372	2,62,654	1,49,882	1,74,378	5,69,498	5,52,218	4,86,976	6,53,976	4,16,706	6,18,258	7,51,008	7,18,684	7,73,303	7,24,000	7,46,840	7,21,940	6,58,480	5,38,480	4,68,820	5,96,090	6,77,760	6,02,624
Punjab	73,095	1,63,083	−22,935	1,69,143	1,76,310	1,72,039	2,05,959	2,57,091	1,91,282	1,74,936	4,10,767	1,09,024	4,51,883	2,75,858	1,81,329	3,79,799	1,56,360	2,76,870	3,10,310	3,36,060	3,84,420	2,96,530	6,19,010	1,89,310	4,63,499
Burma (Lower)	5,45,884	7,46,851	4,19,160	4,26,700	8,01,045	10,81,580	12,74,941	12,91,451	4,58,749	8,72,907	9,22,837	11,86,203	13,77,361	18,01,872	15,91,791	15,32,993	22,20,120	21,47,710	18,95,970	20,56,810	23,14,900	26,82,090	25,93,390	28,03,700	30,18,597
Burma (Upper)	...	...	...	...	...	...	...	...	...	...	1,05,886	1,75,724	7,94,799	15,32,270	13,41,982	9,53,441	16,34,880	17,71,890	16,22,820	17,05,420	19,35,150	23,36,560	32,31,310	25,60,850	23,81,130
Central Provinces	3,71,031	3,01,876	4,59,104	4,84,150	3,51,627	6,75,871	5,65,400	5,58,711	5,31,381	5,91,462	4,58,117	5,40,430	5,11,708	4,59,776	4,77,907	5,55,985	3,79,450	2,02,200	32,770	44,600	−1,77,970	−1,11,390	1,23,770	−2,22,180	32,239
Assam	−8,752	33,173	35,751	31,506	20,072	699	67,782	11,683	−17,285	−14,838	−276	40,420	93,977	1,22,369	42,941	68,601	1,18,760	2,20,280	1,63,080	1,38,890	1,54,430	95,990	92,800	2,10,960	2,01,549
Coorg	42,285	64,747	17,191	46,621	31,370	40,568	73,252	12,799	36,282	28,696	25,203	54,399	56,008	20,333	69,743	96,037	1,07,590	86,900	66,910	49,410	21,370	43,890	74,570	88,190	66,691
Ajmer	−21,555	−11,924	−12,204	−11,889	−11,299	−9,889	−4,158	−6,376	−5,860	−6,772	−9,470	−4,601	−2,102	−1,109	2,546	5,813	−110	−1,280	−2,060	−90	−9,640	870	−1,880	−5,630	−6,136
Forest Surveys (Imperial)	−58,923	−60,165	−60,262	−46,840	−40,063	−42,489	−41,247	−30,904	−19,589	−18,978	−28,107	−32,823	−21,846	−20,968	−22,220	−26,525	−21,640	−27,660	−29,760	−29,445	−31,570	−33,720	−33,630	−37,560	−33,624
Forest School	...	...	...	...	...	...	...	...	−22,405	−23,966	−30,416	−32,352	−32,512	−28,409	−74,007	−42,559	−48,420	−63,549	−63,190	−63,640	−64,530	−58,030	−61,010	−70,340	−67,541
Andamans	3,372	205	5,564	−4,740	25,574	46,101	69,013	12,601	−547	−13,091	6,101	41,333	48,760	67,220	28,274	92,429	1,29,280	1,97,240	−8,250	30,100	45,770	1,85,370	91,060	1,19,660	1,37,749
Total	12,01,850	19,72,013	11,88,259	15,35,203	18,09,045	23,03,250	26,49,565	29,17,856	17,93,691	22,25,828	26,63,358	26,88,152	41,14,766	52,74,196	46,32,720	46,96,743	56,61,510	58,79,950	50,28,650	53,01,540	57,17,142	63,48,640	78,43,920	68,17,170	73,77,637
Madras	−42,987	−15,314	1,10,874	77,641	2,17,610	2,63,489	2,61,090	1,66,971	2,70,411	2,60,678	93,789	2,45,708	2,94,212	3,96,899	5,48,495	3,09,962	2,46,820	5,34,410	5,07,680	6,64,960	7,69,930	5,63,640	5,15,850	6,48,760	6,24,739
Bombay	3,87,679	3,33,812	1,76,971	4,47,723	3,55,460	6,58,936	8,11,583	9,38,928	9,96,119	15,26,825	10,79,766	10,88,572	11,56,228	13,67,005	14,18,333	13,53,192	13,64,580	17,22,410	16,32,110	15,78,280	10,63,550	15,43,470	4,55,900	2,86,770	5,52,948
Total (British India)	15,46,542	23,40,511	14,76,104	20,60,567	23,82,115	31,65,675	37,22,238	40,23,755	30,60,171	40,13,331	37,36,913	40,22,432	55,65,206	70,37,591	65,99,548	64,19,897	72,72,910	81,36,770	72,18,440	75,44,780	75,49,720	84,55,750	88,15,670	77,52,700	85,55,302
Berar	1,58,420	1,69,268	1,81,354	1,96,994	1,37,588	80,526	1,36,960	1,51,439	1,44,536	1,96,609	1,54,562	2,22,682	2,37,765	2,63,992	3,18,188	3,12,819	2,01,790	2,28,550	2,21,760	2,48,830	2,75,950	1,56,300	2,01,770	2,13,850	67,449
Forest Surveys (Berar)	...	...	...	...	...	...	...	−15,043	−33,870	−42,309	−41,821	−41,502	−23,955	−6,364	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	−2,040	934	−6,923	−12,159	−7,177	−837	−3,755	−3,690	−10,326	−4,065	−13,726	−9,888	−36,590	−43,000	−24,610	−26,840	−14,310	−12,206	−12,840	−11,620	12,236
Grand Total	17,04,962	25,09,779	16,57,458	22,57,561	25,17,663	32,47,135	38,52,275	41,47,992	31,63,660	41,30,794	39,42,894	41,99,922	57,68,690	72,91,054	69,01,010	67,22,828	74,38,110	83,72,320	74,15,590	77,66,770	78,11,360	75,99,760	90,01,690	79,91,930	86,10,453

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

O. I. C. P. O.—No. 1234 R. & A.—29-9-02.—300.—C.T.

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REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1901-02.

OF THE
BOMBAY
BRANCH
OF THE

BY

S. EARDLEY-WILMOT,

OFFICIATING INSPECTOR-GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

VI
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CALCUTTA:
OFFICE OF THE SUPERINTENDENT OF GOVERNMENT PRINTING, INDIA.
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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREAS.

I.—Alterations in Area.

The following table shows the alterations which took place during the year in the area of *Reserved Forests*:—

Province.	Area, in square miles.				Remarks.
	In 1900-1901.	Added 1901-1902.	Excluded in 1901-1902.	At close of 1901-1902.	
Bengal	5,881	83	...	5,964	
United Provinces of Agra and Oudh	4,050	4	1	*4,053	* Includes 153 square miles of *leased* forests.
Punjab	†2,663	3	352	2,314	† Excludes 234 square miles in the Hazara Division transferred to the North-West Frontier Province.
Burma	17,836	1,279	509	‡18,606	‡ Includes 560 square miles of *taungya* areas.
Central Provinces	18,881	58	161	18,778	
Assam	3,609	99	1	3,707	
Coorg	238	...	...	238	
Ajmer	139	...	...	139	
North-West Frontier Province	234	...	...	234	
Baluchistan	203	...	...	203	
Andamans	156	...	...	156	
Total	53,390	1,526	1,024	54,392	
Berar	3,953	147	146	3,954	
Total Bengal Presidency	57,343	1,673	1,170	58,346	
„ Madras „	16,589	609	44	17,154	
„ Bombay „	13,708	254	38	§13,924	§ Includes 679 square miles of *leased* forests in the Dangs, Surat District.
Grand Total, 1901-1902	88,140	2,536	1,252	89,424	
Grand Total, 1900-1901	86,970	2,999	1,829	88,140	

The net increase in the area of the reserves was 1,284 square miles, for which Burma and Madras were principally responsible.

In Burma the area excluded is made up by corrections due to recalculations after survey and the disforestation of 56 square miles in order to provide for the requirements of Kachin villages. In the Punjab the area disforested comprised land required for colonization, and in the Central

Provinces the changes are due partly to the giving over of land for cultivation, and partly to correction of area made after survey.

The area of all forest lands under the management of the Forest Department is shown below :—

Province. Name.	Area, in square miles.	Forest area, in square miles. Reserved.	Protected.	Unclassed State.	Total.	Proportion of Forests to whole area of Province.	Remarks.
1	2	3	4	5	6	7	8
						Per cent.	
Bengal . . .	151,185	5,964	3,582	4,033	13,579	8·98	
United Provinces of Agra and Oudh . .	107,161	*4,053	30	43	4,126	3·85	* Includes 153 square miles of *leased* forests.
Punjab . . .	97,209	†2,314	4,888	2,262	9,464	9·74	† Includes 345 square miles of *leased* forests and does not take into account 113 square miles of Military reserves and 4 square miles of Civil reserves.
Burma . . .	168,550	‡18,606	...	89,220	107,826	63·97	‡ Includes 560 square miles of taungya areas.
Central Provinces .	86,469	18,778	...	130	18,908	21·87	
Assam . . .	52,959	3,707	...	17,865	21,572	40·73	
Coorg . . .	1,582	238	127	(a)267	632	39·95	
Ajmer . . .	2,711	139	...	10	149	5·49	
North-West Frontier Province . .	13,132	234	...	...	234	1·78	
Baluchistan . .	9,403	203	...	...	203	2·16	
Andamans . . .	3,188	156	...	1,795	1,951	61·19	South Island only.
Total .	693,549	54,392	8,627	115,625	178,644	25·76	
Berar . . .	17,744	3,954	...	...	3,954	22·28	
Total Bengal Presidency	711,293	58,346	8,627	115,625	182,598	25·67	
Madras . . .	141,705	17,154	...	(a)2,412	19,566	13·81	(a) Reserved lands.
Bombay . .	122,914	§13,924	791	...	14,715	11·97	§ Includes 679 square miles in the Dangs, Surat District.
Grand Total, 1901-1902	976,912	89,424	9,418	118,037	216,879	22·22	
„ „ 1900-1901	948,348	88,140	10,488	109,741	208,369	21·97	

The increase of area under the management of the Forest Department, amounting to 8,510 square miles, occurs almost entirely in Burma; between 8,000 and 9,000 square miles in the Northern Shan States being now included for the first time in Public Forest Land. In this Province either accurate area statistics are not always available or the method of calculation of forest land at the disposal of the State is not always uniform. The large area of unclassed forest in Assam is especially noticeable in connection with the slow progress made in the formation of new reserves; for whereas in Burma 1,279 miles of new reserves were created during the year, in Assam only 99 square miles were notified; and even these 99 square miles do not appear to have been transferred from unclassed forest, but from "areas of the district about which no information is available."

II.—Forest Settlements.

3. Excellent progress was made in Forest Settlements in Burma and Madras during the year and much new work was taken in hand; the cost of these operations in Burma compares very favourably with that in Madras, where forest settlements appear to be unusually costly. The method of working and the comparative density of the population, necessitating more detailed enquiry, probably account for the variations in expenditure in different Provinces where equally good results are obtained.

The following table shows the progress made in forest settlement work in the various provinces up to the year under review :—

Province.	Areas already settled at the commencement of the year.			Areas finally settled during the year.					
				Area.			Expenditure incurred.		
	Reserved forests.	Protected forests.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	₹	₹	₹
Bengal	5,881	...	5,881	83	...	83	6,266	...	6,266
United Provinces of Agra and Oudh.	3,900	30	3,930	...	...	...	...	...	...
Punjab	2,438	4,888	7,326	...	...	...	...	...	...
Burma	17,526	...	17,526	930	...	930	1,417	...	1,417
Central Provinces	18,881	...	18,881	9	...	9	...	...	...
Assam	3,608	...	3,608	99	...	99	...	...	...
Coorg	238	...	238	...	...	...	...	...	...
Ajmer	139	...	139	...	...	...	...	...	...
North-West Frontier Province.	234	...	234	...	...	...	...	...	...
Baluchistan	203	...	203	...	...	...	...	...	...
Andamans	156	...	156	...	...	...	...	...	...
Berar	4,176	...	4,176	...	...	...	...	...	...
Total Bengal Presidency	57,380	4,918	62,298	1,121	...	1,121	7,683	...	7,683
„ Madras „	16,589	...	16,589	462	...	466	4,725	...	4,725
„ Bombay „	13,153	1,023	14,176	224	44	268	...	...	...
Grand Total, 1901-1902	87,122	5,941	93,063	1,807	44	1,855	12,408	...	12,408
„ „ 1900-1901	85,923	3,525	89,454	1,600	2,407	4,007	15,336	...	15,336

Province.	Area undergoing settlement.								
	At commencement of the year.			Taken in hand during the year.			Expenditure incurred during the year.		
	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	₹	₹	₹
Bengal	604	...	604	...	...	...	188	...	188
United Provinces of Agra and Oudh.	...	...	...	...	...	...	...	...	...
Punjab	13	...	13	...	...	...	...	...	...
Burma	1,355	...	1,355	589	...	589	2,593	...	2,593
Central Provinces	9	...	9	135	...	135	...	...	...
Assam	50	...	50	81	...	81	...	...	...
Coorg	...	365	365	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...	...	...	...
North-West Frontier Province.	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...
Berar	...	...	...	...	...	...	...	...	...
Total Bengal Presidency	2,031	365	2,396	805	...	805	2,781	...	2,781
„ Madras „	1,273	...	1,273	313	...	313	12,668	...	12,668
„ Bombay „	31	2	33	31	...	31	6,569	...	6,569
Grand Total, 1901-1902	3,335	367	3,702	1,149	...	1,149	22,018	...	22,018
„ „ 1900-1901	3,833	241	4,074	1,338½	...	1,338½	20,948	...	20,948

III.—Demarcation.

The greatest progress was made in Madras, Burma, and Bombay. The expenditure on demarcation work varied enormously in the different provinces, but the average cost appears to have been R13·3 per mile for the whole of India. In Bombay the work proved to be expensive, while in the Central Provinces it was carried out at very low rates. But a comparison between the cost of work in the different provinces can be of little interest since the method of demarcation varies with varying conditions, and the expenditure must rise with an increase in the value of the land, and the risk of encroachment, and the consequent necessity of more numerous and more permanent boundary marks.

In many provinces the boundary demarcation is nearly complete, in others such as Burma it is keeping pace with Forest Settlement, while elsewhere as in the Punjab, Madras, and Bombay much still remains to be done. Ordinary repairs to boundary marks cost during the year R46,475 as against R50,131 in the previous year. It is obvious that the adequate demarcation is a matter of the first importance and even admitting that the work often presents great local difficulties, the statistics available of the length of undemarcated boundaries appear in more than one instance to indicate that undue delay has been permitted in affording to the Forest estate the most elementary form of protection.

The following table shows the detail of the boundaries in the various provinces at the close of the year :—.

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	236	3,105	269	3,610	97	1,763	5,470	6,310	9,154
North-Western Provinces and Oudh.	Central Circle	2	667	1,966	2,635	29	698	3,262	138	1,191
	Oudh „	4	308	1,003	1,315	20	269	1,604	1,051	1,062
	School „	14	380	363	757	176	297	1,230	693	1,460
	Total	20	1,255	3,332	4,607	225	1,264	6,096	1,882	3,713
Punjab	.....	33	1,159	9,322	10,514	4,232	1,196	15,932	474	2,473
Lower Burma	Pegu Circle	198	815	1,461	2,474	221	1,221	3,916	1,996	1,583
	Tenasserim Circle	459	677	1,938	3,074	...	597	3,671	1,989	2,524
	Total	657	1,492	3,399	5,548	221	1,818	7,587	3,985	4,107
Upper Burma	Northern Circle	165	758	1,822	2,745	82	739	3,566	1,431	2,950
	Southern „	395	777	1,689	2,861	307	497	3,665	5,483	2,731
	Total	560	1,535	3,511	5,606	389	1,236	7,231	6,914	5,681
Central Provinces	Northern Circle	69	9,730	1,321	11,120	28	1,434	12,582	325	1,557
	Southern „	5	10,824	1,496	12,325	136	948	13,409	8	3,962
	Total	74	20,554	2,817	23,445	164	2,382	25,991	333	5,519
Assam	.....	12	1,243	1	1,156	16	1,491	2,663	94	2,838
Coorg	.....	...	22	260	282	...	15	297	412	143
Ajmer	.....	6	5	254	265	...	158	423	237	...
North-West Frontier Province.	.....	...	18	666	684	...	...	684	...	234
Andamans	.....	...	12	291	303	...	77	380	...	...
Baluchistan	.....	...	...	42	42	29	116	187	...	...
Berar	.....	165	1,165	474	1,804	17	217	2,038	1,286	1,018
Total Bengal Presidency	.....	1,763	31,465	24,638	57,866	5,380	11,733	74,979	21,927	34,380
Madras Presidency	Northern Circle	755	1,648	5,659	8,062	742	495	9,299	9,326	1,509
	Central „	685	5,978	7,960	14,623	591	171	15,385	5,420	630
	Southern „	596	645	6,118	7,359	876	708	8,943	9,097	3,704
	Total	2,036	8,271	19,737	30,044	2,209	1,374	33,627	23,843	5,843
Bombay Presidency	Northern Circle	467	1,000	2,297	3,764	1,028	383	5,175	10,050	962
	Central „	245	3,900	13,059	17,204	5,386	861	23,451	3,491	2,713
	Southern „	250	368	904	1,522	10,915	637	13,074	3,939	2,077
	Sindh „	8	1,480	473	1,961	35	588	2,584	...	...
	Total	970	6,748	16,733	24,451	17,364	2,469	44,284	17,470	5,752
Grand Total 1901-02	.....	4,769	46,484	61,108	112,361	24,953	15,576	152,890	63,240	46,475
Grand Total, 1900-01	.....	5,221	40,539	60,898	106,658	27,009	15,790	149,457	60,921	50,131

N.B.—Boundaries include, besides the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-divisions such as blocks, compartments and coupes.

IV.—Surveys.

(Communicated by the Superintendent of Forest Surveys.)

Satisfactory progress was made in survey work during the year, and the outturn of topography was the largest yet recorded. Detachments of the Forest Surveys, Bengal Presidency, were employed in the Punjab, the Central Provinces, Bengal, Burma, and in the United Provinces of Agra and Oudh, while No. 20 Party continued its programme in Burma. Survey Parties of the Survey of India continued their operations in Madras and Bombay, and were, as a preliminary measure to the proposed amalgamation of all Forest Surveys under one administrative officer, placed under the Superintendent of Forest Surveys.

The following statement shows the outturn and cost-rates of detail survey for the year under report and for the previous year. The cost-rates include mapping, and, except in the case of Madras and Bombay, publishing charges, but not the cost of preliminary traversing and triangulation, which, however, is included in the total expenditure :—

Presidency or Province.	4″=1 mile.				8″=1 mile.				16″=1 mile.				Total of Detail Surveys on 4″ scale and over.			Expenditure on Surveys.	
	1901-02.		1900-01.		1901-02.		1900-01.		1901-02.		1900-01.						
	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	Outturn.	Cost-rate.	1901-02.	1900-01.	Total up to date (4).	1901-02 (5).	1900-01.
	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	R	Sq. M.	Sq. M.	Sq. M.	R	R
Bengal	527	48	361	61	...	...	...	...	...	...	...	...	527	361	1,469	22,658 (6)	26,547
U. P. of Agra and Oudh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3,839	1,333	836
Jubal and Tarock	100	23	43	47	...	...	...	...	...	...	...	...	100	43	143	2,538	2,021
Punjab (1)	...	...	50	98	...	...	...	...	...	...	...	...	...	50	3,122	783	3,605 / 4,963
North-West Frontier	12	...	...	...	...	...	...	...	...	...	...	...	12	...	12	1,740	...
Burma	998	122	873	99	...	...	...	...	... (2)	... (3)	... (3)	... (3)	998	873	7,789	204,978	177,524
Central Provinces	1,424	29	1,556	37	...	...	...	...	1,893	2	1,691	2	1,424	1,556	10,733	63,943	77,602
Assam	...	...	...	...	...	...	...	...	...	...	...	...	...	...	524	...	...
Berar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	75	...	...
Totals for Bengal Presidency	2,961	63	2,883	68	...	...	...	...	1,893	2	1,691	2	2,961	2,883	35,705	297,963	293,118
Madras (1)	1,238	59	1,377	68	...	...	...	...	...	...	...	...	1,238	1,377	10,523	91,625	93,336
Bombay (1)	607	64	409	65	162	136	255	106	...	...	11	113	769	675	8,999	71,361	62,350
Totals for Madras and Bombay.	1,845	61	1,786	67	162	136	255	106	...	...	11	113	2,007	2,052	19,527	162,989	155,685
Grand Total	4,806	62	4,669	67	162	136	255	106	...	...	1,702	57	4,968	4,935	55,233	460,977	448,803

(1) Survey of India, other figures are for Forest Surveys.
(2) Linear miles not included in totals.
(3) Cost-rate per linear mile.
(4) Final Forest areas for which there are surveys on 4″ scale and over, all small scale surveys, boundary surveys, and all surveys which have been superseded by others, are omitted from these totals.
(5) The expenditure is from October 1901 to 30th September 1902.
(6) Mapping and publishing charges only.
Note.—The 4″ surveys in the Bengal Presidency include the usual record of forest growth.

The results are satisfactory. The outturn and cost-rates continue in most cases to show an improvement. The total cost is nearly R12,000 in excess of that of 1900-1901. The increase is principally due to the extra cost of a new detachment sent to Burma and to the increased expenditure due to No. 20 Party commencing operations in the Chindwin, the cost of carriage being much in excess of what it has been hitherto. The increase in Bombay is due to an increase in the cost of supervision owing to an Imperial Officer having been appointed to the charge of No. 17 Party.

The large outturn cannot be maintained in the future owing to the approaching completion of surveys in the Central Provinces, which have for

many years past afforded a field favourable to large outturns and cheap rates.

Good progress has been made in mapping and publishing. Two hundred and ninety-eight sheets have been published during the year including 27 working-plan and other special maps. When necessary advance tracings and prints before publication were supplied to the forest officers.

Details of survey work in the different provinces are as follows:—

Bengal.—One detachment of Forest Surveys continued the 4″ detail surveys of the Reserved and Protected forests in Singhbhum and another completed the 4″ detail survey of the Koderma forests which was undertaken principally for the purpose of locating the Mica mines there.

The maps of the Singhbhum forests have been withheld from the Press pending the settlement of the boundaries of the protected forests. Traces were however supplied of both the Singhbhum and Koderma maps for present use.

The cost-rates continue satisfactory, the cost per square mile of detail survey in Singhbhum being R50 as compared with R30 in 1899-1900. No surveys of any importance by local agency are reported.

During 1902-1903 it is proposed to survey the reserves in the Kurseong and Darjeeling Divisions.

United Provinces of Agra and Oudh.—A small detachment of Forest Surveys was employed on the survey of the newly erected monoliths in Kheri, Gorakhpur and Bahraich in the Oudh Circle. In 1902-1903 the survey of the new reserves in the Central Circle will be undertaken, and a new edition, brought up to date, of the Kumaun-Garhwal forest maps will be published.

No survey work of any importance by local agency was reported.

Punjab.—No. 18 Party, Survey of India, has now completed its programme of large scale surveys in Kangra and Kulu. A detachment of Forest Surveys continued the 4″ survey of the Jubal and Taroch State forest which will be completed by the end of 1902.

The programme for 1902-1903 consists of a 4″ detail survey of the Pabbi reserve in the Chenab Division and of certain reserves in Rawal Pindi.

All the 4″ sheets of Bashahr have now been published. The publication of the 4″ maps of Chamba is still in a backward state, but arrangements have been made by which it is hoped that all these maps will be sent to the Press before the end of 1903.

Surveys of portions of the undemarcated forests in Kulu and of the Shahdera plantation in Lahore were carried out by officers of the Forest Department.

North-West Frontier Province.—The orders for the 4″ detail survey of the forests in the Khagan and Siran ranges of Hazara were not received in sufficient time to allow of the work being carried out during the year. The survey will however be completed during 1903.

Burma.—No. 20 Party, Survey of India, and a detachment of Forest Surveys were employed on survey work in all Circles. In the Tenasserim Circle a small area only was surveyed and it is proposed to suspend further operations until more working-plans have been drawn up for the areas already surveyed.

In the Pegu Circle some traversing was carried on in the Minden Yoma reserve in Thayetmyo in preparation for the detail survey of the Reserves situated on the eastern slopes of the Arracan Yoma range which will be taken up in rotation.

In the Northern Circle No. 20 Party commenced operations in the Upper Chindwin and Myittha Divisions, and it is in the Chindwin basin that the work of this Party will lie for some years to come.

In the Southern Circle survey work in the Pyinmana Division was completed. The Taungdwingyi block in Minbu, an area of over 400 miles, was also surveyed by No. 20 Party, thus completing the survey of the extensive continuous range of forests on the slopes of the Pegu Yomas which extends for over 200 miles from north to south. A detachment of Forest Surveys also continued the survey of the forests in the Shweli Valley and maps have been supplied for the proposed working-plans there. The cost-rates of detail survey in Burma are higher than those for the previous year, while the rates for triangulation and traversing are less. The higher rates for detail survey are due to a larger number of men having been employed in Upper Burma where the local and travelling allowances are higher than in Lower Burma. The extra cost of transport and the distance from the base of operations, which involves loss of time and consequent smaller outturn, likewise added to the cost.

The programme for the next few years consists of the survey of the forests in the Chindwin basin, in Bhamo, Katha and the Ruby Mines in Upper Burma and of the reserves on the eastern slopes of the Arracan Yomas in Lower Burma.

In addition to the work done by Forest Surveys a considerable amount of boundary survey was done by Forest Officers.

Central Provinces.—Two detachments of Forest Surveys were employed in Mandla and completed the surveys in that Division as well as in the Northern Circle. Two detachments were also employed in Chanda where there now only remains some 200 square miles which it is expected to complete during 1902-1903, this bringing to an end all surveys in the Circle with the exception of the Cherla range, the transfer of which to Madras is at present under the consideration of Government.

The cost-rates in the Central Provinces are the lowest yet recorded.

One hundred and seventy-eight 4″ sheets were published during the year and nearly 250 are in the Press and in progress.

Assam.—No surveys of any importance were reported. The survey of the Sâl reserves in the Garo Hills, Kamrup and Nowgong will be commenced in 1902.

Ajmer.—An area of 25 square miles was surveyed under the local Forest Officer by a Surveyor lent for the purpose by the Superintendent of Forest Surveys.

The mapping is in progress and 16 sheets have been sent to Press and 8 published.

Coorg
Baluchistan }.—No surveys reported.

Andamans.—No survey was undertaken during the year. The Forest Officer remarks in his Report that the existing maps are not on sufficiently large a scale to allow of their being utilized for making detailed working-plans for the Andamans forests, but so far no application has been made for a large scale survey.

Berar.—With the exception of boundary and compartment surveys by local agency, no surveys were done. Second editions of the 1″ maps of the Darwha, Daryapur and Malkapur taluqs were published.

Madras.—Nos. 9 and 19 Parties of the Survey of India under one executive officer continued 4″ detail surveys in all Circles. The outturn was as follows :—

	Sq. miles.
Northern Circle	435
Central „	501
Southern „	302

A small detachment also carried out the triangulations and traversing of the Godavari Delta for the Irrigation Department.

A Surveyor lent to the Court of Wards surveyed the Sivagiri Zemindari forests on the 4″ scale.

The cost-rates were practically the same as for last year except those for traversing which owing to heavy line clearing were somewhat in excess though below the average of late years.

The publication of maps is in some cases in arrears partly owing to the necessity for the rectification of rights and boundaries and partly owing to some work requiring further examination and revision.

Some minor surveys were made by Range Officers.

Bombay.—No. 17 Party, Survey of India, continued its operations in the Northern, Central and Southern Circles.

The outturn of detail survey was as follows :—

	4-inch.	8-inch.
Northern Circle	...	87
Southern „	491	3
Central „	116	72
TOTAL .	607	162

The outturn, taking into consideration the relative values of the different scales, is practically the same as for last year.

The cost-rates for the year, except those of 8″ detail survey, are practically the same as the average for the two previous years : the increase in the cost of 8″ survey is entirely due to an increase in the charge for supervision.

INDIA
SHOWING PROGRESS OF
FOREST SURVEYS
Up to 30th September 1902
Scale 1"=180 Miles
100 50 0 100 200 300 400 Miles
Diagram showing progress of Forest Surveys on 4-1 Mile and on larger Scale up to 30th September 1902
Bengal Presidency
Bombay
Madras
Areas in Sq. Miles
REFERENCES
Forests Surveyed on 4 & larger Scales
Other forests
Circle boundary
Divisional boundary
No. of Forest Division
REFERENCES TO DIAGRAM
Surveyed during 1901-02.
Surveyed previously.
AFGHANISTAN
KABUL
KASHMIR
BAHAWALPUR
RAJPUTANA AGENCY
CENTRAL INDIA AGENCY
NEPAL
BHUTAN
CHINA
ASSAM
BURMA
ARABIAN SEA
BAY OF BENGAL
HYDERABAD
MADRAS
MYSORE
CEYLON
ANDAMAN ISLANDS
NICOBAR ISLANDS
GULF OF SIAM
MALACCA STRAITS
SIAM
MALDIVE ISLANDS
Bombay
Calcutta
Madras
Karachi
Delhi
Lucknow
Jodhpur
Jaipur
Indore
Nagpur
Hyderabad
Mysore
Pondicherry
Cochin
Trivandrum
Colombo
Rangoon
Mandalay
Akyab
Moulmein
Tavoy
Mergui
Amherst
Thaton
Bassein
Prome
Henzada
Thayetmyo
Pegu
Myitkyina
Bhamo
Katha
Shwebo
Monywa
Meiktila
Minbu
Yamethin
Toungoo
Sittang
Tharrawaddy
Insein
Hanthawaddy
Maubin
Myaungmya
Thongwa
Kyaukse
Sagaing
Kyaukpyu
Sandoway
Thandwe
Ramree
Sandoway
Arakan
Chittagong
Cox's Bazar
Hill Tracts
Garo Hills
Khasi Hills
Jaintia Hills
Naga Hills
Lushai Hills
Manipur
Cachar
Goalpara
Kamrup
Darrang
Nowgong
Sibsagar
Lakhimpur
Balipara
Sadiya
Mishmi Hills
Abor Hills
Mirí Hills
Aka Hills
Dafla Hills
Gulf of Cutch
Gulf of Cambay
Gulf of Manaar
Mouths of the Ganges
Mouths of the Irrawaddy
Compiled under the supervision of Major F. J. Gordon, I.S.C., Superintendent, Forest Surveys, Bengal Presidency.
Published under the direction of Colonel St. G. C. Gore, R.E., Surveyor General of India. December 1902.
Photozincographed at the Office of the Trigonometrical Branch, Survey of India, Dehra Dun.
NO. 762-S.02.

V.—Working-Plans.

The following tables show the progress made in Working-Plans :—

(A)

Areas brought under the control of sanctioned Working-Plans up to 30th June 1902 in the Provinces of the Bengal Presidency.

Province.	Forest Area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June 1902.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	Total.		
1	2	3	4	5	6	7
					Sq. miles.	Per cent.
Bengal	5,964	3,582	4,033	13,579	4,381	32
United Provinces of Agra and Oudh	4,053	30	43	4,126	3,672	89
Punjab	2,914	4,888	2,262	9,464	2,647	28
Burma	18,606	...	89,220	107,826	2,196	2
Central Provinces	18,278	...	730	18,908	9,775	51
Assam	3,707	...	17,865	21,572	533	2
Berar	3,954	...	...	3,954	725	18
Coorg	233	127	267	632	178	28
North-West Frontier Province	234	...	...	234	76	32
Baluchistan	203	...	...	203	...	...
Andamans	156	...	1,796	1,951	...	...
Ajmer	139	...	10	149	139	93
Total 1901-02	58,346	8,627	115,625	182,598	24,322*	13
„ 1900-01	57,844	9,237	106,789	173,870	22,679	13

N.B.—For explanation of the figures in columns 2 to 5, please see the remarks column of the area statement.

* At the beginning of the year this figure stood at 22,679 square miles, which was reduced by 89 square miles owing to transfers, etc., during 1901-02, leaving a balance of 22,590 square miles, which, added to 1,732 square miles of newly sanctioned areas=24,322 square miles—see Table C.

(B)

Progress made in Working-Plans in the Provinces of the Bengal Presidency during 1901-1902.

Province.	Preliminary proposals submitted to the Inspector General of Forests for Working-Plans.		Completed Plans submitted for opinion and remarks of Inspector General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
		Sq. miles.		Sq. miles.		Sq. miles.
Bengal	2	118	1	110	...	...
U. P. of Agra and Oudh—Central Circle	...	...	1	19(a)	1	19(a)
U. P. of Agra and Oudh—Oudh „	...	...	3	279	2	200
U. P. of Agra and Oudh—School „	...	...	1	156	...	...
Punjab	1	3 (b)	3	292(c)	2	223(d)
Burma (Lower)—Pegu Circle	4	711	...	...	...	...
Burma (Lower)—Tenasserim Circle	1	274	...	...	...	...
Burma (Upper)—Northern Circle	...	...	...	...	...	...
Burma (Upper)—Southern „	2	145	3	380	1	122
Central Provinces—Northern Circle	...	...	...	...	1	789
Central Provinces—Southern „	...	...	...	...	3	602
Assam	...	...	...	...	...	...
Berar	5	1,595½(e)	1	261	...	...
Coorg	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...
Andamans	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...
Total 1901-02	15	2,846½	13	1,497	10	1,955(f)
„ 1900-01	11	3,085	9	2,991	5	1,391

(a) Area of Khair blocks included in Kumaon Working-Plan.
(b) Old area of Shadara-cum-Jagian Working-Plan under revision.
(c) Includes old areas of Pangi Working-Plan (42 square miles) and Kothkai-Kotguru Working-Plan (13 square miles) under revision.
(d) Includes old areas of Pangi Working-Plan (42 square miles) and Murre-Kahuta Working-Plan (181 square miles) already taken into account.
(e) Old area of Betragarh-Gugumal Working-Plan under revision.
(f) As in (d).

(C)

Comparative statement of progress made in Working-Plans during 1901-02.

Provinces.	Areas for which working-plans have been completed and sanctioned.		Areas for which working-plans are being compiled.		Areas for which working-plans have still to be taken in hand.	Total forest area as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	
Bengal	(a)4,381	...	841	109	8,248	13,579	(a) At the commencement of the year the area was 4,460 square miles of which 79 square miles were excluded.
United Provinces of Agra and Oudh. — Central Circle	(b)1,555	(d)19	...	...	(c)355	1,929	(b) Includes 10 square miles for Cantonment and Municipal forests not under the Forest Department (Naini Tal Cantonment 1; Naini Tal Municipal 2; Ranikhet Cantonment 7).
United Provinces of Agra and Oudh. — Oudh „	(e) 1,107	200	8	...	...	1,315	
United Provinces of Agra and Oudh. — School „	(f)791	...	78	...	13	882	(c) This should really be 365 as working-plans for 10 square miles referred to in (b) are not included in column (7).
Punjab	(g)2,647	...	1,247	...	(h)5,570	9,464	
North-West Frontier Province	76	...	82	...	76	234	(d) Karari and khair reserved forests added during the year.
Burma (Lower) — Pegu Circle	1,023	...	...	80	15,431	16,534	
Burma (Lower) — Tenasserim Circle	738	...	449	(n)274	32,532	33,993	(e) Includes 78 square miles of open forests for which a separate working-plan is under preparation.
Burma (Upper) — Northern Circle	(o)36	...	...	...	19,647	19,683	
Burma (Upper) — Southern „	(p)277	122	366	231	36,620	37,616	(f) Reduced by 1 square mile owing to excision.
Central Provinces — Northern Circle	(i)1,825	789	5,189	...	(m)1,661	9,464	(g) Excludes 76 square miles transferred to North-West Frontier Province; 3 square miles added to last year's area owing to correction of area; 7 square miles being the area of the Simla Municipal and Catchment area forests are also included in column (2) but not in column (7).
Central Provinces — Southern „	(j)6,559	602	398	...	(k)1,885	9,444	
Assam	533	...	...	...	(i)21,039	21,572	
Berar	725	...	...	849	2,380	3,954	(h) This should really be 5,577; it has been reduced by 7 square miles to agree with column (7).—See (g).
Coorg	178	...	22	...	432	632	
Baluchistan	...	...	..	...	203	203	(i) Includes 17,985 square miles of unclassed forests for which working-plans are not required at present.
Andamans	...	...	...	...	1,951	1,951	
Ajmer	139	...	...	...	10	149	(j) Reduced by 2 square miles owing to correction and transfer.
							(k) No working-plans are required for 1,451 square miles, consisting chiefly of B. I. areas.
Total Bengal Presidency	22,590	1,732	8,680	1,543	148,053	182,598	(l) Reduced by 1 square mile owing to correction.
							(m) These are B. I. areas for which working-plans are not required.
Madras Presidency* — Northern Circle	230	21	384	282	5,900	6,817	(n) Of the 274 square miles, the Aingdôkan reserve, the examination of 209 square miles was completed during the year.
Madras Presidency* — Central „	336	907	735	744	4,586	7,308	
Madras Presidency* — Southern „	417	685	161	868	3,310	5,441	(o) The area last year was 37 acres, the difference of 1 acre being due to disafforestment.
Total	983	1,613	1,280	1,894	13,796	19,566	(p) The total of columns 2 and 3 of last year's statement is 285 square miles, which includes 5 square miles of unclassed land in the Yeni reserve and 10 square miles of village lands in Minbyin; the latter is now excluded and 2 square miles were added during the year.
Bombay Presidency* — Northern Circle	638	159	471	...	1,059	2,327	
Bombay Presidency* — Southern „	740	14	736	76	3,488	5,054	
Bombay Presidency* — Central „	404	445	279	385	4,751	6,264	
Bombay Presidency* — Sindh „	...	176	565	141	188	1,070	
Grand total 1901-02	1,782	794	2,051	602	9,486	14,715	
„ „ 1900-01	1,319	468	4,989	893	7,294	14,958	

* *N.B.*—For Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

9. The Government of India have recognized the principle that elaborate working-plans are, as a rule, unnecessary in forests where, owing to absence of demand, it is impossible in the present conditions of forestry in India to give effect to any scheme of systematic working. There can be no doubt that in the past, owing to eagerness to introduce regulated working, money and time have been sometimes unnecessarily expended in the attempt to prescribe for forests, yielding at present no financial profit, a continuous system of management, and that consequently many plans which have received official sanction remain a dead letter; such instances are not uncommon in Assam and the Central Provinces. In the latter province the question of the selection of those areas in which sanctioned working-plans are to remain in abeyance is engaging the attention of the forest officials, and it is hoped that in future it may be fully recognized that a demand for forest produce is the main justification for the compilation of a forest working-plan, and that a departure from simplicity in its prescriptions can only be justified when the intensity of that demand necessitates care and elaboration in the effort to satisfy it.

10. As the preparation of working-plans is one of the most important branches of Forest Administration, it is treated in detail below—

Bengal.—Here, though working-plans are much required, little progress has been made of late years. Hence it is satisfactory to note that the compilation of working-plans is receiving the unqualified support and approval of the Local Government, and that while one plan, that for the Puri forest, has been completed, others, for Kurseong and Singhbhum, are in course of preparation.

The control of some of the existing plans owing to defective preparation of and to delay in submitting the control forms in the past, is a matter of difficulty, and it is not always possible to discover to what extent the prescriptions of plans have been carried out. This question is, however, receiving due attention with the result that improvement is already apparent.

The United Provinces of Agra and Oudh.—Plans were either completed or approaching completion for the forests in the Pilibhit, Gonda and Kheri Divisions, while in the School Circle a plan for the Dehra Dun Division was in course of preparation. It will be noted that 89 per cent. of the reserved forests are already under sanctioned working-plans, and with the completion of the work now in hand, little if any unfinished work will remain under this head. The prescriptions of existing plans are generally well worked up to, for excellent markets have been found for the disposal of produce.

Punjab.—Three working-plans for the Murree, Chamba and Tarech forests were sanctioned during the year, while good progress was made in the revision and preparation of others. The most important work will, in the near future, consist in the revision of existing plans. For much of the large area of protected and unclassed forests plans are not at present required, nor is it in all cases settled to what extent these areas will be required for colonization.

Burma.—Here the compilation of working-plans is being carried out with great energy, a five-year scheme having been prepared which allows of eight working-plan parties taking the field; but progress is at times somewhat retarded owing to the absence of maps. Under plans at present in force girdling alone is generally prescribed, and little reference is made to the actual felling and export operations. The result may be that girdled trees are left standing in the forests, involving, besides a waste of material, an additional source of danger in the event of fire breaking out. The matter has lately been receiving attention and it is proposed in future to limit girdling operations by the actual or probable demand for the girdled material.

Central Provinces.—Four working-plans received official sanction during the year. Owing to the absence of demand in many forests working-plans will remain in abeyance, so that the area under systematic treatment will, in the near future, rather diminish than increase.

Assam.—No progress was made during the year. An increase in facilities of transport would doubtless result in the creation of markets for forest produce, but until the efforts of

the Forest Staff have been successful in this direction, any large expenditure on working-plans appears to be hardly justified.

Coorg, Ajmer, Baluchistan and the Andamans.—Nothing was done in these Provinces and the compilation of working-plans is here not of such urgency as in other parts of India.

Berar.—No new working-plans were sanctioned, but various plans are in the course of preparation.

Madras.—Much progress was made, plans for 1,613 square miles having been sanctioned while for 1,894 square miles plans were in course of preparation.

Bombay.—In five Divisions working-plans were sanctioned and in no less than 15 others working-plans were in course of compilation.

In this Presidency, however, the compilation of forest working-plans appears to stand in need of more careful professional supervision.

Much delay and inconvenience often result from the transfer of working-plans' officers before completion of their tasks. In some Provinces this may necessitate the disbanding of a party that has been collected and instructed at very considerable cost; in any case there is the serious drawback of loss of local knowledge which may lead to undesirable alterations in a formulated scheme. The exigencies of the service are no doubt responsible in many cases for changes in working-plans' parties which should, however, only be constituted after the most careful consideration as to whether they can be maintained up to the completion of the work. It may otherwise be preferable to postpone the preparation of a plan until these conditions are present.

VI.—Communications and Buildings.

11. The following statement shows the expenditure on communications and buildings in the various provinces :—

Province.	New Work.		Repairs.		Other works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	₹	₹	₹	₹	₹	₹
Bengal	18,734	15,420	11,559	6,810	3,329	55,852
United Provinces of Agra and Oudh	28,601	16,669	13,254	36,034	10,750	111,278*
Punjab	10,129	4,772	5,969	3,437	6,228	30,605†
Burma	42,079	14,803	20,198	4,177	9,266	90,523
Central Provinces	12,121	829	8,161	4,983	472	26,556
Assam	3,665	10,902	6,791	1,330	1,223	23,911
Coorg	530	44	686	1,116	791	3,167
Ajmer	97	538	84	310	154	1,183
North-West Frontier Province	286	384	1,393	322	212	2,597
Baluchistan	...	...	...	3	...	3
Andamans	1,154	6,106	286	1,394	...	8,940
Berar	1,559	...	4,168	5,790	346	11,863
Total Bengal Presidency	1,19,025	70,467	78,539	65,676	32,771	3,66,478
„ Madras „	26,508	30,475	22,329	23,535	10,991	1,13,838
„ Bombay „	9,088	6,078	6,350	15,033	1,640	36,189
GRAND TOTAL 1901-02	1,54,621	1,07,020	1,07,218	1,02,244	45,402	5,16,505
„ „ 1900-01	1,69,194	70,065	1,01,891	89,999	33,210	4,64,359

* Includes charges of District Forests.
† Excludes „ „ Mazara „

Roads and Bridges.

12. The total expenditure of the year amounted to ₹2,09,000 as against ₹1,60,000 in the previous year. The increase is principally under new works.

Good progress in the construction of new roads was made in *Madras, the United Provinces and Bengal. In Madras* the expenditure increased by some ₹17,000 and was

incurred chiefly in the Southern Circle; in *the United Provinces* valuable timber forests were opened out in the Central Circle, while in *Bengal*, the Singhbhum Division is principally responsible for the increased expenditure.

In Assam there was an increased expenditure of R9,500; R10,000 were spent on the purchase of portable tramways for use in the valuable Goalpara forests. In the Andamans R5,000 were expended in continuing the construction of a steam tramway.

Repairs to roads were responsible for an expenditure of R65,000 in the Bengal Presidency and Burma, this being also the cost in the previous year.

The expenditure under this head increased in Bombay by R7,000 and by R5,000 in Madras. In the latter Presidency much damage was done to roads and bridges by the heavy rainfall.

Now that the work of the Forest Department on its commercial side is attracting greater attention, and must continue to do so still more in the future when the yield of the improved forest areas in India comes into the market, the question of affording increased facilities for disposal of produce should receive the most careful consideration. The full utilisation of the forest yield as well as the excellent financial results noticeable in the United Provinces are doubtless primarily due to the liberal foresight which has for many years permitted a large expenditure in the creation of a network of roads traversing the forests of these Provinces. These form a system of feeders to the light railways, which in some instances owe their origin to the sustained yield of the forest and to the ease with which that yield can be moved.

There are other Provinces which, similarly situated, might reap the same advantages by adopting a similar policy; and Forest Officers would do well to give the subject the attention it merits, remembering that their duties include not only the production of the best outturn of which the forest is capable, but also its disposal to the best advantage of the State.

Buildings.

13. The total expenditure on buildings was R2,62,000 as against R2,71,000 the preceding year.

The greatest expenditure was incurred in Burma, Madras and the United Provinces.

In Burma twenty-seven new rest-houses were constructed or partly constructed, while four were purchased. Two residences were also constructed for the Conservators in Upper Burma at a cost of about R32,000 by the Public Works Department, who also completed a building for the accommodation of the combined offices.

In Madras twelve rest-houses were constructed or were in the course of construction during the year.

In the United Provinces twelve rest-houses were in the course of construction, some of them having been completed during the year. In the other provinces the expenditure on buildings was on a more limited scale.

Bengal.—Two head-quarters houses for the Divisional officers were completed or nearly so, while six inspection houses were in the course of erection; R5,469 was also expended on accommodation for subordinates.

Punjab.—An expenditure of nearly R9,000 was incurred on the construction and repair of head-quarters and rest-houses, while R5,732 was expended on providing suitable quarters for subordinates.

Central Provinces.—The number of rest-houses in course of construction was four.

The question of housing the subordinate establishment was energetically taken up, especially in the Southern Circle, and the progress made earned the commendation of the Chief Commissioner.

Assam.—No new rest-houses seem to have been built or to be in the course of construction, but R3,200 were expended on subordinates' quarters and minor works.

Coorg, Ajmer, the North-West Frontier Province, Baluchistan and the Andamans.—Little was done except the maintenance of existing buildings.

Berar.—Expenditure was curtailed as far as possible and the utmost economy exercised, consequently little progress was made on new works.

Bombay.—One new rest-house appears to have been built in Bombay, the bulk of expenditure having been incurred in building subordinates' quarters and offices and in keeping such in repair.

There can be no question that in many provinces provision of suitable shelter for officers on tour is urgently called for as having a marked effect in the successful protection and good management of the forests. Those operations which necessitate constant supervision during the inclement seasons of the year, such as fire conservancy and plantation work, cannot readily be carried out without adequate protection against unnecessary exposure, while without the maintenance of health good work is obviously impossible.

In the same way there is evidence that the provision of suitable accommodation for the subordinate establishment is in every way most advantageous, for besides improving the general health of the staff it will, no doubt, tend to attract a better class of men to the Department, and it is therefore satisfactory to be able to record that the importance of the subject has been recognised and that in most provinces work in this direction is being rapidly pushed on.

14. Under Miscellaneous Works the expenditure of the year was R45,000 as against R32,000 in 1900-1901. Under this head is included the construction and upkeep of wells, clearing compounds, camping grounds, etc. It may be here remarked that the great necessity for the periodical cleaning of forest wells is a matter that too often escapes attention. The silting up of wells in constant use, the accumulation of foul water in those that are little used may, if neglected, become a source of danger to health which could be obviated by a little seasonable care and caution.

CHAPTER II.

PROTECTION AND IMPROVEMENT.

I.—General Protection.

(a) Cases decided by the Courts.

15. The number of cases before the Courts was much the same as in the previous year, 11,601 as against 11,273, nor is there a marked difference in any individual province except in Madras where the number rose from 6,324 to 7,082. The percentage of convictions also remained the same, 86·9 as compared with 86·7. It is gratifying to observe that in Assam and Coorg the percentage of convictions rose by 12 and 20 per cent., respectively, proving that cases were carefully examined before the institution of criminal prosecutions, and that only such cases as were supported by well sifted evidence were taken before the Courts.

An analysis of offences as classified in table II below shows that under each of the four sub-heads offences have diminished during 1901-02, though in the Punjab, the Central Provinces, Madras and Bombay it is to be regretted that injury to the forests by fire, intentional or through grave carelessness, is still not an uncommon occurrence.

(b) Compounded cases.

16. The figures of the year are slightly in excess of those of 1900-01 especially in Madras, where such cases have risen by 1,400. This continued increase in Madras was noticed by the Government of India in their review on the local report.

The large increase—nearly 38 per cent.—in the number of compounded cases of injury to the forests by fire is very noticeable, more especially in the Central Provinces and Bombay. Such cases, however, should not, save in very special circumstances, be settled out of Court, and it is preferable that in ordinary circumstances the Court should be asked to judge of the degree of culpability that is attached to the carelessness or intention which may have such disastrous results on the public property. The compounding of such offences is liable to produce on the inhabitants an improper impression of the gravity of the offence and of the damage it occasions and is in every way to be deprecated.

(c) Cases in which the offenders remained undetected.

17. The increase was nearly 541 cases, which is hardly satisfactory. The figures in Bombay are very high and are nearly quadruple of those in the whole Bengal Presidency.

It is not evident whether the forest staff is solely or even in great measure responsible for the failure in detection of so many offences, but in any case it would appear to be advisable that in serious cases of injury to forests from fire or other causes the police should at once be informed so that no chance may be lost of punishing the offender.

18. The two following tables give full details province by province :—

I

* *Breaches of Forest Rules.*

Province.	Number of cases decided by the Court.		Number of cases compounded.		Total.		Proportion of convictions to the total number of cases decided by the Court.	
	1901-02.	1900-01.	1901-02.	1900-01.	1901-02.	1900-01.	1901-02.	1900-01.
							Per cent.	Per cent.
Bengal	240	309	2,293	2,454	2,533	2,763	87·1	86·4
United Provinces of Agra and Oudh	129	128	613	474	742	602	85·3	84·4
Punjab	1,171	1,331	2,628	2,695	3,799	4,026	81·9	80·1
Burma	586	664	1,556	1,706	2,142	2,370	79·0	79·8
Central Provinces . . .	205	208	3,740	3,519	3,945	3,727	75·6	78·4
Assam	99	118	227	233	326	351	94·8	82·3
Coorg	8	18	36	56	44	74	75·0	55·5
Ajmer	396	311	313	227	709	538	93·7	97·1
North-West Frontier Province .	41	39	455	569	496	608	65·9	72·0
Baluchistan	75	54	140	91	215	145	89·3	74·0
Andamans	3	2	...	...	3	2	100·0	100·0
Total .	2,953	3,182	12,001	12,024	14,954	15,206	83·6	82·3
Berar	104	118	818	606	922	724	84·6	81·3
Total Bengal Presidency .	3,057	3,300	12,819	12,630	15,876	15,930	83·8	82·1
„ Madras „ .	7,082	6,324	13,827	12,404	20,909	18,728	90·1	89·7
„ Bombay „ .	1,462	1,649	7,827	7,769	9,289	9,418	83·6	84·4
Grand Total .	11,601	11,273	34,473	32,803	46,074	44,076	86·9	86·7

* Includes cases which were pending at the close of the previous year.

II

* *Breaches of Forest Rules.*

In the following table the offences are classified in accordance with their character :—

Provinces.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				
	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorised felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Grand total of cases.
Bengal	26	124	26	72	5	1,446	656	122	51	14	...	1	85	1,581	682	201	2,552
United Provinces of Agra and Oudh	19	38	22	31	24	530	161	46	60	35	2	6	103	453	198	83	837
Punjab	58	648	401	136	23	1,222	1,422	24	165	18	...	1	246	1,850	1,823	158	4,086
Burma	16	451	12	55	7	1,016	28	493	36	22	...	5	59	1,489	50	553	2,156
Central Provinces	66	99	56	19	193	2,185	870	106	394	180	1	...	653	2,755	927	125	4,460
Assam	2	69	5	23	1	155	4	57	7	...	...	...	10	224	9	80	333
Coorg	...	5	2	1	...	30	6	15	...	...	...	...	...	35	8	16	59
Ajmer	5	362	23	6	...	275	23	15	5	104	16	...	10	741	62	21	834
North-West Frontier Province	16	9	3	2	3	199	243	6	37	5	6	...	61	212	252	8	533
Baluchistan	...	50	27	1	...	9	131	...	2	6	1	...	2	65	159	1	227
Andamans	...	3	...	...	...	...	...	...	...	...	...	...	...	3	...	...	3
Berar	20	63	3	22	46	590	122	55	68	13	...	4	134	666	135	76	1,013
Total Bengal Presidency	228	1,882	590	368	307	7,816	3,689	917	828	398	26	14	1,363	10,096	4,305	1,329	17,093
Madras	49	4,094	2,755	419	15	7,936	6,797	741	195	489	216	44	259	12,489	9,768	1,204	23,250
Bombay	182	809	285	216	151	4,212	2,851	619	2,586	1,775	111	56	2,919	6,797	3,250	891	13,017
Grand Total 1901-02	459	6,736	3,630	1,003	473	19,964	13,340	2,307	3,609	2,662	353	114	4,541	29,372	17,323	3,424	54,690
Grand Total 1900-01	355	6,877	3,617	1,101	294	19,049	12,780	2,011	2,681	2,823	626	117	3,310	28,749	17,053	3,228	52,341

* This includes only the new cases of the year ; not those which were left pending at the close of the previous year.

II.—Protection from fire.

19. The area over which fire-protection was attempted increased from 33,883 square miles to 34,888 square miles, an addition of 1,006 square miles for which Burma, the Central Provinces and Madras were chiefly responsible.

Ninety-two per cent. of the area under protection was successfully protected as compared with 95 per cent. in the preceding year. The best results were obtained in the Punjab, Assam, and the United Provinces; in the two former, however, the area under protection is relatively small.

In Bombay the results achieved compare very unfavourably with those of the previous year.

Excluding the Ajmer figures, the cost per square mile protected varied from R5 in Bombay to R34 in Burma, the average cost being R12, the same as in 1900-01.

Much still remains to be done to establish successful fire-protection over the large area of reserves in Burma, and the cost of initiating operations in a sparsely populated country must always be high, but the measures now being taken appear to be well considered and success may be confidently expected in the future.

20. The details of the work done in the various provinces are shown below—

Fire-Protection of the Reserved Forests.

Provinces.	Area, in square miles.				Proportion of failures to area attempted.		Cost.				Proportion of reserve under protection to total area of reserves	
	Attempted.		Protected.				Per square mile protected.		Per acre protected.			
	1901-2.	1900-1.	1901-2.	1900-1.	1901-2.	1900-1.	1901-2.	1900-1.	1901-2.	1900-1.	1901-2.	1900
					Per cent.	Per cent.	Rs.	Rs.	Pies.	Pies.	Per cent.	Per c
Bengal	2,205	2,189	2,125	2,071	3·6	2·0	6 4	7 9	1·9	2	37	
United Provinces of Agra and Oudh	3,194	*3,189	3,150	*3,145	4·4	4·7	20 4	19 4	6·4	5·6	79	
Punjab	865	843	857	839	·9	·5	6 0	6 0	1·9	1·8	37	
Burma	5,410	5,163	5,279	5,162	3·9	11·6	31 0	34 9	10	10	29	
Central Provinces	5,011	4,796	4,906	4,733	4·8	1·3	10 8	9 4	·3	·25	27	
Assam	1,191	1,190	1,159	1,683	2·7	9·0	7 8	8 8	2·2	2·5	32	
Coorg	204	204	204	202	...	·9	25 0	26 3	7·5	8	86	
Ajmer	119	119	117	1181	2·3	·3	4 15	2 4	1·4	·2	100	1
North-West Frontier Province	72	66	66	64	8·3	1·5	11 8	7 2	3	2	31	
Total	18,304	17,730	17,453	16,8531	4·6	5	15 0	17 0	4	5	34	
Bihar	1,531	1,483	1,435	1,464	5·2	1·3	19 9	9 12	3	2·3	33	
Total Bengal Presidency	19,835	19,213	18,888	18,3178	4·7	5	16 0	17 0	3	3	34	
Madras	5,550	5,218	5,314	5,092	2·6	2·6	7 0	7 0	2	2	22	
Bombay	9,520	9,452	7,719	8,819	13·2	7	5 0	5 4	1·5	1	69	
Grand Total	31,333	31,883	31,951	32,9094	3	5	12 0	12 0	3	3	39	

* Reduced by 24 square miles owing to wrong figures having been included in the area attempted and that successfully treated.

The subjoined table analyses the origin of the fires reported :—

Province.	(A) Fires caused by accident or through carelessness in burning fire lines.		(B) Fires entering the forests by crossing exterior fire-traces.		(C) FIRES COMMENCING INSIDE THE RESERVE OR FIRE-TRACED AREA.																Total of (A), (B) and (C).	
	By workmen employed in the forests by purchasers of forest-produce and by yak-cutters, either accidentally or through carelessness.		By villagers, travellers, etc., passing through the forests, either accidentally or through carelessness.		By railway engines.		By lightning or by fire-balloons.		By intentional firing. In order to obtain new grass.		In order to turn out game, or to reduce cover.		Maliciously.		Total.		Causes unknown.			
	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.	No.	Area burnt, in acres.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Bengal	13	12,803	18	11,093	4	12	25	4,813	2	...	...	...	14	31,816	5	1,834	2	1,200	52	39,675	32	7,676	115	71,247
United Provinces of Agra and Oudh. — Central Circle	3	295	5	2,659	2	1,677	7	619	...	...	...	...	3	29	...	...	..	...	12	2,325	11	2,349	31	7,628
Oudh „	11	3,009	5	2,776	1	3	1	271	...	...	...	...	...	...	1	1,411	10	364	13	2,049	16	7,322	45	15,156
School „	19	1,157	3	232	2	5	4	71	1	1	1	650	...	...	1	900	...	...	9	1,627	5	2,077	36	5,093
Total	33	4,461	13	5,667	5	1,685	12	961	1	1	1	650	3	29	2	2,311	10	364	34	6,001	32	11,748	112	27,877
Punjab	6	94	14	278	65	3,910	67	1,446	...	...	3	...	47	4,940	8	660	20	541	210	11,497	0	422	270	12,291
Lower Burma — Pegu Circle	8	9,977	16	8,805	4	2,701	4	477	1	450	...	...	2	14,080	1	35	13	5,467	25	23,210	46	57,471	95	99,463
Tenasserim Circle	7	1,031	5	866	2	1,068	9	4,483	...	...	...	...	...	...	...	...	...	...	11	5,551	1	4	24	7,452
Total	15	11,008	21	9,671	6	3,769	13	4,960	1	450	...	...	2	14,080	1	35	13	5,467	36	28,761	47	57,475	119	106,915
Upper Burma — Northern Circle	12	12,072	15	54,441	1	6	1	1	1	1	2	13,120	...	...	...	...	...	...	5	13,128	6	14,080	38	93,721
Southern „	6	136	10	8,845	1	25	19	2,812	...	...	...	..	...	...	3	620	3	20,994	26	24,451	4	41,956	46	75,388
Total	18	12,208	25	63,286	2	31	20	2,813	1	1	2	13,120	...	...	3	620	3	20,994	31	37,579	10	56,036	84	169,109
Central Provinces — Northern Circle	33	17,668	27	34,548	14	14,159	56	22,348	8	4,125	5	3,424	...	...	1	5,482	9	1,701	93	51,242	79	121,361	232	224,819
Southern „	28	7,081	53	42,592	19	20,334	26	6,219	...	...	...	...	...	...	5	1,164	24	34,972	74	62,689	90	176,557	245	288,919
Total	61	24,749	80	77,140	33	34,493	82	28,567	8	4,125	5	3,424	...	...	6	6,646	33	36,676	167	113,931	169	297,918	477	513,738
Assam	5	1,288	5	9,228	...	...	2	3	...	...	1	500	...	...	...	...	2	7	5	510	2	9,626	17	20,652
Coorg	...	...	4	164	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	6	5	170
Ajmer	...	...	...	...	5	362	2	40	...	...	...	...	...	...	...	...	...	...	7	402	3	740	10	1,142
North-West Frontier Province	...	...	...	...	1	53	...	...	...	...	...	...	72	3,663	...	...	...	...	73	3,716	4	16	77	3,732
Berar	25	7,903	16	17,718	12	7,515	7	8,503	...	...	3	76	...	...	...	...	4	2,490	26	18,584	12	6,060	79	50,265
Madras — Northern Circle	...	...	5	315	2	530	18	8,237	2	128	...	...	12	1,877	2	...	2	406	38	11,178	140	42,732	183	54,225
Central „	...	...	26	14,612	7	219	23	3,161	3	5	...	...	21	3,411	...	...	4	232	58	7,328	138	24,620	222	46,560
Southern „	28	5,691	10	1,017	16	1,980	52	4,987	2	8	1	100	36	9,612	4	1,080	11	3,856	122	21,621	120	59,670	280	87,999
Total	28	5,691	41	15,974	25	2,729	93	16,685	7	139	1	100	69	14,900	6	1,080	17	4,494	218	40,127	398	127,022	685	188,814
Bombay — Northern Circle	72	9,082	113	29,964	5	509	76	10,581	7	1,654	1	25	5	324	23	2,038	...	..	117	15,131	455	80,270	757	134,447
Central „	80	138,286	96	116,193	220	14,150	434	116,811	27	2,364	42	3,468	...	...	27	24,354	48	31,942	798	192,989	507	532,406	1,487	979,874
Southern „	4	24	45	10,466	3	730	42	2,500	16	614	12	556	5	116	7	695	22	3,737	107	8,918	585	90,184	741	109,622
Sindh „	...	...	1	40	4	143	4	208	...	...	...	...	...	...	...	...	...	...	8	351	20	907	29	1,298
Total	162	147,392	255	156,663	232	15,532	556	130,100	50	4,632	55	4,049	10	440	57	27,087	70	35,579	1,030	217,419	1,567	703,767	3,014	1,225,241
GRAND TOTAL — 1901-02	366	227,597	492	366,882	390	70,091	879	198,891	70	9,348	71	21,919	217	69,868	88	40,273	174	107,812	1,889	518,202	2,217	1,278,512	5,064	2,391,193
1900-01	177	88,437	473	293,227	119	41,583	576	149,806	34	4,685	42	8,549	116	28,500	74	17,865	83	84,249	273	130,701	1,740	1,014,639	3,431	1,734,630

21. It is noticed with much regret that the total number of fires reported rose from 3,434 in 1900-01 to 5,064 in 1901-02 burning more than 3,700 square miles of forest. Considerably more than half the fires that occurred were in the Bombay Presidency, where the area burnt over was in excess of that in all the other provinces of India combined. Fires may be roughly classified as those that might have been prevented by due care on the part of the establishment and those not thus preventible. In the former class are those included under columns A and B of the table given above, amounting in the year under review to no less than 858 and involving injury to more than 900 square miles of State forests. The greater portion of this area was situated in the Bombay Presidency where also nearly half the total number of these preventible fires occurred.

In order to ensure successful protection from fire a considerable outlay is both necessary and admissible, but this outlay should be justified by the results obtained in the improvement of the conditions of the forest growth and the assurance of increased revenue in the future. In the absence of such results the funds thus expended might preferably be diverted to some more profitable undertaking.

III.—Regulation of Grazing.

22. The following table shows the area closed against grazing to all animals and to browsers only:—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.	Sq. ms.
Bengal	5,961	5,445	21	3,582	1,814	526	4,033	...	...	13,576	7,289	547
United Provinces of Agra and Oudh.	4,053	2,007	522	20	...	20	43	1	20	4,126	2,008	562
Punjab	2,314	545	401	4,838	51	74	2,282	16	232	9,434	612	707
Burma	18,606	15,705	2,025	...	...	...	89,220	...	...	107,826	15,705	2,025
Central Provinces	18,778	2,430½	7,418½	...	...	...	130	...	34	18,908	2,430½	7,452½
Assam	3,707	2,708	915	...	...	...	17,865	...	...	21,572	2,708	915
Coorg	233	158	...	127	...	...	267	...	...	632	158	...
Ajmer	139	2½	...	...	...	...	10	...	10	149	2½	10
North-West Frontier Province	234	57	(a) 106	...	...	...	...	...	...	234	57	106
Baluchistan	203	163	...	...	...	...	...	...	...	203	163	...
Andamans	156	...	...	...	...	...	1,795	...	...	1,951	...	...
Berar	3,954	1,353	178	...	...	...	...	...	...	3,954	1,353	178
Total Bengal Presidency	58,316	30,559	11,585½	8,627	1,895	639	115,625	17	306	82,593	32,471	12,522½
Madras Presidency	17,154	1,716	(b) 16,990	...	...	...	2,412	11	(c) 1,182	19,566	1,727	(d)18,172
Bombay Presidency	13,924	2,305	4,822	791	...	225	...	...	...	14,715	2,305	5,047
Grand Total, 1901-02	89,424	34,580	33,398½	9,418	1,895	855	118,037	28	1,488	216,879	36,503	35,741½
" " 1900-01	88,140	33,151½	31,072	10,488	1,973	319	109,741	42	1,625	208,369	35,166½	33,016

(a) Includes 23 square miles open to cattle for part of the year.
(b) 698 square miles closed to both sheep and goats and 16,292 square miles closed to goats only.
(c) 99 ditto ditto 1,083 ditto ditto.
(d) 797 ditto ditto 17,375 ditto ditto.

The percentage of the area of the reserves closed to the grazing of all animals is 38 showing little variation from the preceding year, while in the protected forests not more than $\frac{1}{5}$th is closed. Taking all classes of forests only $\frac{1}{6}$th of the total area is closed to grazing.

These figures indicate clearly the benefits enjoyed by the population in the vicinity of forests and the liberal policy adopted in their interest by the Government of India. In times of scarcity additional areas may be thrown open and the grazing fee, already very small, is not infrequently remitted. The whole question of the principle to be followed in opening State forests in time of famine is at present under the consideration of the Government of India.

23. The following table shows, so far as the information is available, incidence of the grazing :—

Province.	Circle.	Grazed on payment. Number of animals. At full rates. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.	Grazed free. Number of animals. By right under Settlement. Buffaloes.	Cows and Bullocks.	Goats and sheep.	Camels.	Other animals.	During pleasure of Government, or otherwise than under Settlement. Buffaloes.	Cows and bullocks.	Goats and sheep.	Camels.	Other animals.
Bengal	...	3,556	14,200	2,639	...	26	9,376	194,429	16,305	...	548	26,350	90,217	23,887	...	...	67	522	...	...	7
United Provinces of Agra ad Oudh.	Central	21,200	72,164	4,115	85	988	10,569	17,691	95,726	...	1,453	12,750	119,499	11,017	...	1,337	72	1,723	75	...	...
	Oudh	20,449	70,686	3,224	...	137	22,266	90,219	11,782	5	...	3,278	16,707	...	...	...	1,226	3,873	524	...	55
	School	8,530	36,003	10,013	4,922	7,268	1,192	9,081	110	...	...	266	11,928	36,932	...	20	...	1,376	...	...	...
	Total	50,179	178,853	17,352	5,007	8,393	34,027	116,991	107,630	5	1,453	16,294	148,134	47,949	...	1,357	1,298	6,972	599	...	55
Punjab	...	20,299	52,320	430,068	6,953	463	1,329	14,148	218,927	175	178	145,135	622,928	567,366	282	10,119	42	328	731	476	281
Burma	Pegu	599	703	...	...	...	...	...	...	...	...	8,311	14,418	...	...	28	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	7,779	628	20	...	8	...	...	...	...	...
	Northern	...	...	...	...	...	...	...	...	...	...	7,260	1,743	...	...	...	870	...	...	22	52
	Southern	79	176	...	...	...	...	...	...	...	...	...	34,218	...	...	...	10	22	...	...	255
	Total	678	879	...	...	...	...	...	...	...	...	23,350	51,007	20	...	36	880	22	...	22	307
Central Provinces	Northern	176,773	797,151	77,857	35	7,316	...	...	...	...	...	...	...	...	...	...	...	11,790	...	...	...
	Southern	105,921	852,222	175,493	...	681	19,843	34,274	2,677	...	240	...	...	...	...	...	90	2,755	146	...	...
	Total	282,694	1,649,373	253,350	35	7,997	19,843	34,274	2,677	...	240	...	...	...	...	...	90	14,545	146	...	...
Assam	...	28,900	7,428	30	...	49	...	...	...	...	...	...	...	...	...	...	46,606	247,106	13,233	...	676
Coorg	...	353	2,752	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	...	...	...	...
Ajmer	...	137	3,259	4	116	212	230	1,870	...	...	...	113	1,771	...	...	...	77	632	...	...	...
North-West Frontier Province	...	2,560	2,205	1,031	...	41	...	...	...	...	...	370	740	...	...	...	1,660	7 240	...	...	63
Baluchistan	...	47	2,064	1,420	...	1	...	7	508	...	45	...	751	16,652	1	224	...	...	...	...	...
Andamans	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Berar	...	79,304	423,368	313,346	105	1,515	393	6,751	40	...	...	15	308,567	...	...	...	72	9,777	163	...	56
Total Bengal Presidency	...	468,707	2,336,721	1,019,270	12,216	18,697	6,698	368,470	348,087	180	2,464	211,627	1,225,865	665,874	283	10,736	50,794	287,144	14,872	498	1,445
Madras Presidency	Northern	70,744	388,962	1,537,120	...	136	10,559	50,692	6,486	...	...	...	2,685	5,505	...	...	1,501	6,724	...	...	...
	Central	31,488	663,781	808,209	...	12	...	1,269	3,510	...	...	..	1,900	...	...	...	3,547	13,469	623	...	...
	Southern	20,211	247,113	100,587	...	350	...	2,514	...	...	...	1,794	...	...	...	...	...	169	...	...	...
	Total	122,443	1,299,856	2,445,916	...	498	10,559	54,475	9,996	...	...	1,794	4,585	5,505	...	...	5,048	21,362	623	...	...
Bombay Presidency	Northern	1,100	5,540	...	...	...	705	2,125	...	...	...	6,028	26,798	...	...	1,154	31,717	144,961	...	...	...
	Central	4,793	21,397	64,715	...	1,116	16,568	97,532	59,520	...	1,403	...	...	...	...	...	12,280	116,785	2,129	...	2,866
	Southern	1,752	936	22,081	...	...	126,028	346,402	104,519	...	110	...	...	...	...	...	44	1,745	50	...	...
	Sindh	42,560	49,444	268,367	7,339	764	8,041	14,613	12,416	446	...	4,506	18,748	91	13	541	1,274	3,632	4,748	2,038	4,230
	Total	50,205	77,317	355,163	7,339	1,880	151,342	460,672	176,455	446	1,513	10,534	45,546	91	13	1,695	45,315	267,123	6,927	2,038	7,096

The above figures are in many cases an estimate only.

The most noticeable point is the large increase in grazing at full rates in the Central Provinces and Berar. This may indicate not only partial recovery from the excessive cattle mortality that has prevailed in those provinces, but also some relief from the conditions consequent on excessive drought in past years. The number of cattle grazing at privileged rates and during the pleasure of Government shows a large decrease in the Central Provinces corresponding, no doubt, to the increase in cattle grazing at full rates and showing that the people are in a better position to pay the full grazing rates for their cattle.

The total number of cattle that grazed during the year amounts to nearly 13 million head, yielding a revenue of some 15 lakhs of rupees as shown in the statement below.

From this statement it will also be observed that the amount of grazing revenue remitted throughout India almost equals the collections; in Bombay, particularly, free grazing is allowed to a very large extent.

The annual grazing fees charged in the different provinces vary, but seldom exceed 8 annas for a buffalo and 4 annas for a cow or bullock. The fee is even less for browsers although the latter do the maximum of damage, but it is now recognized that these should not be admitted into any area where tree growth is of importance.

Province.	Circle.	Amount realised.	Amount foregone.
		R	R
Bengal	...	24,278	86,651
United Provinces of Agra and Oudh	Central	25,041	44,060
	Oudh	33,566	24,540
	School	16,285	7,216
	TOTAL	74,892	75,816
Punjab	...	1,53,600	2,27,396
Burma	Pegu	1,408	15,455
	Tenasserim	...	4,296
	Northern	...	2,585
	Southern	323	17,030
	TOTAL	1,731	39,366
Central Provinces	Northern	2,00,274	2,211
	Southern	1,53,832	5,156
	TOTAL	3,54,106	7,367
Assam	...	17,012	88,562
Coorg	...	1,181	656
Ajmer	...	617	1,275
North-West Frontier Province	...	2,176	8,268
Baluchistan	...	345	9,915
Andamans	...	...	...
Berar	...	1,55,514	66,991
Total Bengal Presidency	...	7,85,452	6,12,263
Madras Presidency	Northern	2,15,849	13,010
	Central	2,11,021	4,679
	Southern	79,751	1,133
	TOTAL	5,06,621	18,822
Bombay „	Northern	2,157	1,36,489
	Central	71,007	1,98,181
	Southern	85,373	4,17,478
	Sindh	40,314	38,382
	TOTAL	1,98,851	7,90,530
GRAND TOTAL 1901-1902	...	14,90,924	14,21,615
GRAND TOTAL 1900-1901	...	12,06,713	15,37,183

* Includes amount realized by sale of grass also.

IV.—Reproduction and Sylviculture.

24. The following table shows the changes which took place in the areas of plantations and the cost of the year's work in the various provinces :—

Province.	Area, in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at the close of the year. Regular Plantations.	Taungyas.	Total.	Cost of operations during the year.
													R
Bengal	2,572	...	2,572	65	...	65	...	...	...	2,937	...	2,937	535
United Provinces of Agra and Oudh	3,208	...	3,208	103	...	103	...	...	...	3,311	...	3,311	1,245
Punjab	696	...	696	75	...	75	75	...	75	696	...	696	494
Burma	3,663	47,957	51,625	68	3,015	3,078	...	...	...	3,731	50,972	54,703	69,544
Central Provinces	...	...	2,975	271	...	...	...	...	...	...	...	...	...
Assam	2,968	7	2,885	...	...	271	...	...	...	3,239	7	3,246	6,554
Coorg	2,309	576	...	...	11	11	...	...	...	2,309	587	2,896	1,724
Ajmer	907	...	907	14	...	14	...	...	...	921	...	921	...
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	33	...	33	...	...	...	...	...	...	33	...	33	99
Andamans	390	...	390	71	...	71	...	...	...	461	...	461	87
Berar	655	...	655	...	...	...	655	...	655	...	...	...	...
Total Bengal Presidency	17,706	48,540	66,246	662	3,026	3,688	730	...	730	17,633	51,566	69,204	80,332
Madras	38,355	...	38,355*	366	...	366	196	...	196	38,525	...	38,525†	38,266
Bombay	3,315	...	3,315	4,122	...	4,122	495	...	495	6,942	...	6,942	11,344
Grand Total 1901-02	59,376	48,540	107,916	5,150	3,026	8,176	1,421	...	1,421	63,105	51,566	114,671	1,29,942
Grand Total 1900-01	74,118	47,232	121,350	1,879	1,393	3,272	22,167	...	22,167	53,830	48,625	102,455	1,31,050

* 32,843 acres were shown in the Madras Report for 1900-1901.
† Includes 13,872 acres of topes.

In Bengal 65 acres of regular plantations were added, principally, near Darjeeling where 48 acres were planted up with Silver fir and 14 acres with Oak, Magnolia and Cryptomeria.

In the United Provinces an area of 103 acres near Naini Tal was sown with *Pinus longifolia* seed which is reported to have germinated well.

In Burma the area under "Taungyas" increased by 3,015 acres chiefly in the Pegu Circle.

In the Mergui rubber plantation 663 acres were planted up with *Hevea braziliensis*, in continuation of a scheme by which some 10,000 acres will ultimately come under rubber cultivation.

In Assam an area of 271 acres was added to the Darrang rubber plantation, bringing up the total area to 2,848 acres on which an expenditure of R6,350 was incurred during the year.

In Madras, Northern and Southern Circles, the areas of the teak plantations were extended by some 260 acres, while experimental planting and sowing were made in various Divisions.

In Bombay planting was extended in the Poona and Bijapur Divisions where respectively 2,036 and 1,347 acres were added, but the results do not appear to have been very successful.

25. The following sums were spent on cultural operations :—

	Rupees
Bengal	8,264*
United Provinces of Agra and Oudh	2,605
Punjab	4,893†
Burma	7,616
Central Provinces	444
Assam	23
Coorg	194
Ajmer	775
North-West Frontier Province	171
Baluchistan	16
Andamans	49
Berar	2,192
Madras	5,141
Bombay	17,173
Total Rupees.	49,556

* Includes R17 for works done during 1900-01.

† Excludes R20,300 not also wa either under Regular Plantations or Cultural operations.

The expense and uncertainty of regular plantations render their expediency doubtful save in very special circumstances, more especially where there exist numerous areas where money would be remuneratively expended in assisting natural reproduction and on works of improvement in the existing indigenous forest growth.

26. The division between regular plantation work and cultural operations though actually well defined has apparently in some cases been misunderstood by the writers of forest reports, and a classification of these operations would seem to be called for. It is proposed to consider the question in connection with the new edition of the Forest Code which, it is hoped, will shortly be published.

In consequence of this misunderstanding it has not in all cases been possible to judge of the extent and cost of operations undertaken with a view to benefit the growing stock, but it is evident that these are obtaining more of the attention they merit. The information afforded as to the progress of natural reproduction of the principal species is, in most instances, extremely scanty. Records of unfavourable seed years or the reverse are, no doubt, both interesting and valuable if carefully maintained in Divisional Forest offices, but what is more specially required in Circle Reports is information as to the germination of the seed and continuance of the seedling, a description of the conditions which prevent or encourage regeneration, and a statement of the means which have been successfully adopted for the removal of hindrances to regeneration or of observations made with that object in view. In some circles in Burma special interest is being taken in the reproduction of teak in natural forest. The subject is one of the greatest importance and will, it is hoped, be followed up so as to afford, not a collection of suggested reasons for certain observed phenomena, but a record of facts which have come under actual observation.

CHAPTER III.

Working and Outturn.

27. The following table gives the total outturn of all the forests under the control of the Forest Department together with the average outturn per square mile :—

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			Average outturn per square mile. Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.	Timber and fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	23,473,209	13,202,631	2,06,788	18,294,496	4,738,505	1,45,342	673,231	6,218,093	5,412	2,936	2,214	33	5,105	1,326	41	167	1,541	1
United Provinces of Agra and Oudh	11,877,320	13,489,505	2,55,065	283,932	45,350	4,069	431,199	43,700	1,526	2,890	3,328	63	12,738	1,512	135	307	1,046	35
Punjab	5,933,507	900,457	1,69,942	22,592,711	11,271	2,48,873	12,475,385	60,208	1,12,929	2,590	390	73	4,620	2	51	5,957	27	49
Burma	7,419,854	16,199,000	70,905	...	...	...	33,527,136	17,179,000	90,467	945	869	4	...	...	...	369	53	1
Central Provinces	14,895,150	16,538,197	5,89,461	...	...	...	4,175	...	561	793	881	31	...	...	...	32	...	4
Assam	1,385,673	1,065,294	27,028	...	...	...	9,011,865	17,386,213	3,43,834	372	283	6	...	...	...	504	973	19
Coorg	220,075	138,970	4,328	253,520	10,600	11,653	...	...	...	921	591	18	...	...	...	2,035	83	99
Ajmer	181,031	976	23,117	156	...	160	7,232	...	1,072	1,302	7	202	...	...	...	16	...	16
North-West Frontier Province	773,361	...	25,651	...	...	...	...	...	...	3,309	...	109	...	...	...	...	...	...
				...	...	...	407,471	...	...	94	...	54	...	...	...	2,077	...	...
Baluchistan	19,217	...	11,056	...	...	...	1,336,263	433,155	3,801	3,878	1,296	2	...	...	...	744	211	2
Andamans	905,011	202,580	417	...	...	...	...	...	...	963	1,023	77	...	...	...	...	...	...
Berar	3,807,621	4,043,769	3,03,904	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Bengal Presidency in 1901-02	70,851,032	66,781,392	15,33,446	41,509,744	4,815,693	4,10,091	58,573,956	71,318,401	5,60,602	1,211	1,145	28	4,812	558	48	507	617	5
Total Bengal Presidency in 1900-01	72,224,856	62,529,113	17,30,003	41,666,496	4,772,279	4,28,440	58,832,710	80,557,894	6,36,560	1,249	1,081	31	4,511	516	46	547	751	...
Madras	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombay	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

The forests of the Madras Presidency yielded 18,627,473 cubic feet of timber and fuel excluding sandalwood, 39,178,236 bamboos and R11,90,467 worth of minor produce. Average outturn per square mile is 942 cubic feet of timber and fuel, 2,002 bamboos and R61 worth of minor produce.
The forests of the Bombay Presidency yielded 42,184,901 cubic feet of timber and fuel, 4,373,249 bamboos and R6,83,424 worth of minor produce. Average outturn per square mile is 2,863 cubic feet of timber and fuel, 297 bamboos and R47 worth of minor produce.

28. In the Bengal Presidency the total outturn of *timber and fuel* was thus 170,736,000 cubic feet, as against 172,724,000 cubic feet in 1900-01, an apparent decrease of nearly 2,000,000 cubic feet; these figures are inclusive of estimates in cases where no detailed accounts of disposals are kept.

The figures for *bamboos* show a decrease of about 5,000,000, being estimated as follows :—

In 1901-02	142,919,000
„ 1900-01	147,859,000

the decrease occurring principally in the unclassed forests. Under *minor produce* the total revenue collected in 1901-02 was R26,64,000 against R28,45,000 in the previous year.

The value per square mile of the above description of produce showed no great variation from figures of previous years.

29. The following table distinguishes between forest produce removed by Government agency and that removed by purchasers and contractors, and is useful as showing the methods adopted by the various Local Administrations in the extraction of produce. There can be no doubt that in the present constitution of the forest staff it is preferable to arrange for the removal of produce by the agency of purchasers and contractors as this procedure

does away with the necessity of close and constant supervision over daily labourers by the forest official and removes the temptations and other disadvantages incidental to the handling of large sums of money by a low paid staff. But this system is only possible where an effective demand exists. In the absence of such a demand it often becomes necessary, in order to dispose of produce which would otherwise deteriorate, to burden the Forest Officer with the duty of extracting the produce and even of delivering it to the consumer until such time as a regular market is created. Thus, much as Local Administrations would prefer to dispense with departmental working, they are often hampered in this regard until improved conditions induce a contractor to compete for the purchase of the raw material in the forests. As a rule it may be inferred that where in any province the outturn of forest produce is comparatively small and its extraction is carried out by Government agency, the Forest Officer has been backward in opening up his forests and in encouraging the creation of a market by affording facilities for the extraction of produce at rates remunerative to the purchaser.

The amounts of forest produce removed by Government agency contrasted with the amounts removed by purchasers, were as follows:—

Province.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.	Removed by Government.	Removed by Purchasers.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Bengal	149,976	6,998,041	212,343	20,202,240	497,526	18,084,726	4,497	2,19,762
United Provinces of Agra and Oudh	504,214	3,039,834	729,657	3,549,948	511,139	12,839,557	26,122	1,72,972
Punjab	1,180,640	919,784	4,222,705	1,054,522	944,754	30,065	27,904	1,61,852
Burma	3,273,041	20,695,116	44,008	13,773,166	28,000	59,590,000	2,497	1,03,930
Central Provinces	524,520	1,989,721	743,740	11,439,667	246,443	16,194,919	48,760	5,30,770
Assam	73,906	3,000,458	11,586	1,836,046	12,099	16,203,774	18,073	54,437
Coorg	82,826	282,329	7,500	100,520	...	132,970*	30	15,300
Ajmer	191	338	662	141,345	22	954	1,760	2,399
North-West Frontier Province	132,730	257,653	24,159	318,018	...	...	1,033	15,779
Baluchistan	68	14,322	386,218	16,833	...	...	49	1,153
Andamans	305,060	17,457	1,143,275	3,412	47,335	42,000	3,485	188
Berar	3,689	634,897	48,665	1,961,928	10,312	2,728,597	448	2,23,333
Total Bengal Presidency	6,230,861	37,849,950	7,574,518	54,397,645	2,297,630	125,847,562	1,34,658	15,01,875
„ Madras „	389,361	2,760,175†	3,965,639	10,900,457	49,709	38,726,111	38,863	11,06,780
„ Bombay „	1,225,035	2,278,606	4,608,999	23,205,611	94,843	4,229,318	71,639	3,44,838
Grand Total 1901-2	7,845,257	42,888,731	16,149,156	88,503,713	2,442,182	168,802,991	2,45,160	29,53,483
Grand Total 1900-1	7,015,813	44,515,785	17,242,323	82,962,434	3,162,718	162,081,060	2,22,850	27,38,536

* Includes 30,500 reeds.
† Includes Sandalwood.

These figures compare with those of the previous year as follows :—

Agency of removal.	Timber.		Fuel.		Bamboos.		Minor produce (including grass and grazing).	
	1901-02.	1900-01.	1901-02.	1900-01.	1901-02.	1900-01.	1901-02.	1900-01.
	C. ft.	C. ft.	C. ft.	C. ft.	No.	No.	R	R
Government . .	7,843,862	7,015,813	15,572,256	17,242,323	2,442,182	3,162,718	2,45,160	2,22,850
Purchasers . .	42,706,126	44,515,785	85,208,394	82,962,434	168,763,609	162,081,061	29,53,483	27,38,536
Total .	50,549,988	51,531,598	100,780,650	100,204,757	171,205,791	165,243,778	31,98,643	29,61,386

30. An analysis of the outturn of the various provinces together with the agency of removal, is appended :—

Bengal—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R
Government	149,976	212,343	362,319	497,526	4,497
Purchasers	6,998,041	20,202,240	27,200,281	18,084,726	2,19,762
Free-grantees	10,532	23,408	33,940	1,180	1,636
Right-holders	261,580	14,573,815	14,835,395	5,583,700	1,31,628
Total . 1901-02 .	7,420,129	35,011,806	42,431,935	24,167,132	3,57,523
Total . 1900-01 .	7,250,457	33,842,782	41,093,239	24,033,557	3,69,766

The increase in the output of timber was due principally to a keener demand in the Sundarbans. This also accounted for the increased quantity of fuel taken out, which was the largest on record. The decrease in the value of minor produce was due principally to the stormy weather in the tidal waters and the dread of tigers which are stated to have killed 86 people during the year in the Sundarbans forests alone.

United Provinces—

Agency of removal.	Timber.	Fuel.	Total wood.	Ringals and bamboos.	Grazing and grass.	Minor produce.
Government	504,214	729,657	1,233,871	511,139	11	26,111
Purchasers	3,039,834	3,549,948	6,589,782	12,839,557	1,20,811	52,161
Free-grantees	124,133	158,012	282,145	...	2,318	318
Right-holders	721,796	3,564,857	4,286,653	227,359	55,710	4,211
Total . 1901-02 .	4,389,977	8,002,474	12,392,451	13,578,555	1,78,850	82,801
Total . 1900-01 .	4,265,732	8,643,987	12,909,719	10,786,881	1,73,101	82,033

The above figures call for little comment. The most noticeable increase was in the removal of bamboos, but the number exported was not above normal, the figures of 1900-01 being in deficit.

In the United Provinces good and accessible markets exist, and it may be said that the whole of the forest outturn with the exception of fuel is readily saleable at remunerative prices. This is, as has been pointed out, no doubt due in a great measure to the well-advised policy of the Local Government in expending large sums annually in the construction and maintenance of excellent roads and export paths.

Punjab.—The following table gives a summary of the work of the year :—

Agency of removal.		Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
		C. ft.	C. ft.	No.	R	R
Government		1,180,640	4,222,705	944,754	144	27,760
Purchasers		919,784	1,054,522	30,065	1,47,064	14,788
Free-grantees		15,950	112,096	...	1,278	...
Right-holders		1,322,925	33,223,011	120	2,93,704	47,026
Total	1901-02	3,439,299	38,612,334	974,939	4,42,190	89,574
	1900-01	3,002,270	38,133,091	458,926	4,45,331	88,611

* Excludes the figures of the Hazara District.

Owing to the exclusion of the Hazara Division from the Punjab and its inclusion in the North-West Frontier Province, it is difficult to compare the figures of the two years. There was, however, a marked increase in the amount of timber exported from the hill forests owing to the extension of systematic working. Deodar always finds a ready sale and the market for blue pine is rapidly improving, while the demand for bamboos from the Kangra forests is expanding.

The resin tapping is now a well-established local industry having passed from the experimental stage. The Punjab report contains a valuable and interesting account of what has been done under this head, but not until an export trade has been established will the operations admit of any great extension. The Indian market is readily glutted with colophony and the quotations for this product in one year cannot always be taken to represent the value of the stock in hand a few months later. In this industry only necessity would induce the storage of an inflammable material, and large stocks would appear to indicate the prevalence of low market rates.

Burma.—The gross outturn of the forests is exhibited, as compared with that of the preceding year, in the following statement :—

Agency of removal.		Timber.	Fuel.	Bamboos.	Grass and grazing.	Minor produce.
		C. ft.	C. ft.	No.	R	R
Government		3,273,041	44,008	28,000	...	2,497
Purchasers		20,695,116	18,773,166	59,590,000	1,731	63,050
Free-grantees		381,872	...	15,000	3,259	2
Right-holders		642,013	2,137,778	3,745,000	48,850	5,18,830
Total	1901-02	24,992,042	16,954,952	63,378,000	53,840	5,84,379
	1900-01	26,915,046	17,123,432	62,423,000	47,186	1,91,851

Timber extracted by Government agency was 540,000 c. ft. in excess of the previous year, while that removed by the agency of contractors decreased by 2,582,000 c. ft. The decrease appears to have been due principally to a bad floating season but also to the falling in of large contracts.

The amount of teak extracted according to the figures given in the local Resolution was 156,323 tons. In the previous year it appears to have risen to 247,782 tons. In the Southern Circle, owing to the expiry of a large timber contract, the amount taken out by

contractors fell by 69,000 tons. The decline in extraction was anticipated, that in deliveries was uncontrollable being due to an unseasonable want of rain. The following table gives the export of teak from Burma and the average price obtained :—

Year.	From Moulmein.		From Rangoon.		Total		Average value per Ton.
	Tons.	Value.	Tons.	Value.	Tons.	Value.	
		R		R		R	R
1897-98 . .	65,986	54,21,499	207,405	1,84,37,474	273,391	2,38,58,973	87·27
1898-99 . .	66,002	56,04,701	202,281	1,71,44,554	268,283	2,27,49,255	84·78
1899-1900	62,983	54,84,419	209,303	1,73,87,530	272,286	2,28,71,949	84·00
1900-01 . .	64,271	55,58,616	183,511	1,51,11,083	247,782	2,06,69,699	83·42
1901-02 . .	68,752	58,27,036	177,841	1,53,75,283	246,593	2,12,02,319	85·97

* Includes 2,073 tons valued at R23,944 exported to Bombay, Bengal and Provincial ports.

Under minor produce the value of rubber extracted from the unclassed forests of the Northern Circle fell from R47,000 to R8,000, due partly no doubt to the exhaustion of supply but also perhaps to some extent to disputes between licensees and their employees. Owing to the rubber-producing area lying mostly in unadministered tracts, the Lieutenant-Governor doubts whether it is possible to take effective measures either for the protection of the trees or for the local supervision of the trade. The Cutch industry tends to decrease especially in the Southern Circle and a change in the method of controlling the manufacture is under consideration. In public forest lands Cutch is being rapidly worked out, while in reserves the manufacture is restricted either under the provisions of working-plans or by executive orders with a view to providing a regular yield in the future.

Central Provinces.—The outturn figures of the past year attached below differ little from those of the previous year.

Agency of removal.		Timber.	Fuel.	Total.	Bamboos.	Grass and Grazing.	Minor produce.
		C. ft.	C. ft.	C. ft.	No.	R	R
Government . . .		524,520	743,740	1,268,260	246,443	986	47,774
Purchasers . . .		1,989,721	11,439,667	13,429,388	16,194,919	3,82,292	1,48,478
Free-grantees . . .		15,630	186,047	201,677	97,835	3,085	7,387
Right-holders . . .		...	...	...	...	...	...
Total	1901-02	2,529,871	12,369,454	14,899,325	16,539,197	3,86,363	2,03,639
	1900-01	2,227,996	12,992,927	15,220,923	18,389,368	3,78,133	1,88,680

The removals of timbers by Government agency increased by more than two lakhs of cubic feet. The increase is explained by the railway sleeper contracts entered into in both Circles and in the Northern Circle to the department being forced, by circumstances which are not explained in the report, to itself fell the material in the coupes of the year. In the Southern Circle sales of timber to purchasers were more difficult than in the preceding year owing chiefly to fellings of previous years being still in the market. The increase of fuel removed was due, in the opinion of the Chief Commissioner, to the improved condition of the agricultural classes. The number of cattle grazing free decreased by nearly four lakhs, and there was a corresponding increase in cattle grazing on payment, owing to the withdrawal of famine concessions.

Assam.—The gross outturn of the forests during the year is exhibited in the following table :—

Agency of removal.		Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor Produce.
		C. ft.	C. ft.	C. ft.	No.	R	R
Government		73,906	11,586	85,492	12,099	...	18,073
Purchasers		3,000,458	1,836,046	4,836,504	16,203,774	17,012	37,425
Free-grantees		732,287	4,743,255	5,475,542	2,235,669	88,562	2,10,783
Right-holders		...	...	...	...	...	...
TOTAL	1901-02	3,806,651	6,590,887	10,397,538	18,451,542	1,05,574	2,66,280
	1900-01	3,938,763	7,634,295	11,573,058	27,553,748	1,02,256	3,06,275

The decrease in the removals of timber was due to a diminished demand in the Garo Hills which is always of a very fluctuating character. The decrease in bamboo sales is not fully explained, while the smaller revenue realized from minor produce was due to the low prices offered for rubber, the outturn from two plantations being still unsold at the close of the year.

Coorg.—The following table gives a summary of the total outturn of major and minor produce during the year :—

Agency of removal.		Timber including Sandal wood.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor Produce.
		C. ft.	C. ft.	C. ft.	No.	R	R
Government		82,826	7,500	90,326	...	...	30
Purchasers		282,329	100,520	382,849	132,970	1,260	14,040
Free-grantees		5,320	...	5,320	16,600	...	...
Right-holders		...	...	...	...	656	...
TOTAL	1901-02	370,475	108,020	478,495	149,570	1,916	14,070
	1900-01	335,149	95,120	430,269	176,210	3,636	13,801

Included in the timber removed by Government agency was 201 tons of sandalwood as against 212 tons in the preceding year. This sold at R443 per ton, the highest price yet obtained, the cost of collection and dressing amounting to nearly R22 per ton.

While the demand for good timber in Coorg appears to exceed the supply, with inferior timber the reverse is the case ; the prescriptions of the working-plan are not therefore fully carried out. The Chief Commissioner has under his consideration a revision of the rates for the sale of timber with the object of creating a better market for inferior material.

Ajmer.—The following statement shows the outturn of the forests during the year :—

Agency of removal.		Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor Produce.
		C. ft.	C. ft.	C. ft.	No.	R	R
Government		191	662	853	22	1,760*	...
Purchasers		338	141,345	141,683	954	1,581†	818
Free-grantees		719	224	943	72,000	2,536	123
Right-holders		23,340	21,600	44,940	...	21,657	...
TOTAL	1901-02	24,588	163,831	188,419	72,976	27,534	941
	1900-01	2,543	231,533	234,076	1,770	19,624	665

* Includes R20 being the value of grass supplied on Taccavi during 1898-1899.
† Includes R41 being outstanding recovered during the year.

The large increase in the outturn of timber is due chiefly to the opening of the Todgarh reserve for the free export of wood as a relief measure.

On the other hand, the removals of fuel are less than usual owing to no coppice fellings having been undertaken in two Working Circles consequent on the drought which provided a large quantity of dry fuel outside the State forests. The large increase in the number of bamboos removed is apparently due to removals by free-grantees not having been included in previous returns.

North-West Frontier Province.—The following table gives a summary of the produce removed from the forests during the year :—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R
Government	132,730	24,159	156,889	...	...	1,033
Purchasers	(a) 257,653	(b) 318,018	(c) 575,671	...	15,071	708
Free-grantees	...	5,821	5,821	...	7,968	50
Right-holders	...	34,980	34,980	...	631	...
TOTAL 1901-02 .	390,383	382,978	773,361	...	23,670	1,791
TOTAL 1900-01 .	267,031	187,905	454,936	...	18,425	1,796

(a) Includes 1,375 cubic feet confiscated.
(b) ,, 285 ,, ,,
(c) ,, 1,660 ,, ,,

The figures for the North-West Frontier Province are now given separately from the Punjab for the first time.

There was a great improvement in the demand for "chil" trees and a large increase in fuel sales for supply to the Boer camp and to the various military stations. The Chief Commissioner remarks on the great potential wealth which the Hazara forests represent, the main obstacle to the sale of material being the difficulties of transport.

Baluchistan.—The following statement shows the total outturn of forest produce extracted during the year :—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R
Government	68	386,218	386,286	...	22	27
Purchasers	14,322	16,833	31,155	...	777	376
Free-grantees	7,767	1,480	9,247	...	2	16
Right-holders	...	...	...	...	9,891	...
TOTAL 1901-02 .	22,157	404,531	426,688	...	10,692	419
TOTAL 1900-01 .	13,153	387,012	400,165	...	10,740	167

The increased outturn of timber is due to increased removal by purchasers from the unclassed forests.

The demand for wood in Baluchistan appears to be in excess of the supply as the report notes that 9,000 cubic feet of fuel were imported from Sindh.

Andamans.—The following table gives a summary of the outturn of the several classes of forests during the year :—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R
Government	305,060	1,143,275	1,448,335	47,335	...	3,485
Purchasers	17,457	3,412	20,869	42,000	...	188
Free-grantees	28,755	251,600	280,355	383,400	...	506
District Officers	72,704	119,014	191,718	163,010	...	41
TOTAL 1901-02	423,976	1,517,301	1,941,277	635,745	...	4,220
TOTAL 1900-01	366,207	1,774,952	2,141,159	670,742	...	4,599

The increased volume of timber removed by departmental agency, namely, 52,836 cubic feet, was due to increased facilities for extraction ; 13 new elephants having been received towards the close of the year, more labour being available, and the introduction of more economical methods of transport, the cost of extraction being decreased. Under the same agency less fuel was removed owing to the importation of coal.

The removal of timber by purchasers was 14,957 cubic feet as against 29,511 cubic feet in 1900-1901, the falling off being due to slackness of demand for Gurjan wood in Calcutta and Madras. In June 1902 the contract for 1,600 tons of padouk with Messrs. Gillanders, Arbuthnot & Co. was completed, and a second contract for a like amount entered upon. Three-hundred and ninety-six tons of padouk were sent to London as against 247 tons in the preceding year, while 293 tons remained undisposed of at the close of the year.

Fifty-two thousand eight-hundred and forty-eight pounds of gurjan oil were extracted during the year, giving a net profit to the Department of R1,430.

Berar.—A summary of the outturn of the forests during the year is given below :—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R
Government	3,689	48,665	52,354	10,312	...	448
Purchasers	534,897	1,961,928	2,596,825	2,728,597	1,98,929	24,404
Free-grantees	13,321	672	13,993	22,950	3,652	238
Privilege-holders	208,577	935,872	1,144,449	1,282,810	67,049	9,141
TOTAL 1901-02	860,484	2,947,137	3,807,621	4,043,769	2,69,670	34,234
TOTAL 1900-01	654,410	2,432,699	3,087,109	3,389,313	2,36,549	31,764

Removals of produce of every kind show a marked improvement on the figures of the preceding year, no doubt chiefly due to the recovery of the province from drought and famine. Under agency of removal it is explained that the figures of previous years are somewhat involved, and that comparison is untrustworthy, while some of the outturn figures, especially those for minor produce, are very rough estimates only.

Madras.—The following table exhibits the total outturn of timber and other forest produce collected during the year :—

Agency of removal.	Timber including sandal-wood.	Fuel.	Total wood including sandal-wood.	Bamboos.	Grass and Grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R
Government	389,361	3,965,439	3,354,800	49,709	1,478	37,685
Purchasers	2,760,175	10,941,206	13,701,381	38,726,111	5,39,617	5,67,163
Free-grantees	60,621	354,199	414,820	420,954	3,936	525
Right-holders	1,731	257,709	259,440	20,864	2,010	38,453
TOTAL 1901-02	3,211,888	15,518,553	18,730,441	39,217,618	5,46,741	6,43,826
TOTAL 1900-01	3,223,445	14,823,398	18,046,843	29,968,554	5,14,143	5,76,552

There was a considerable increase in the total yield of the forests except under the head of timber the figures for which were much as in the previous year. Departmental operations for the supply of fuel to the Railway Companies were extended, while sleeper operations were restricted, as the results of the previous year were not considered to warrant their continuance.

The Local Government remarks on the comparative inaccessibility of the reserves and considers that in order to properly exploit the forests an expansion of departmental operations seems called for. It also agrees that some outlay on the improvement of the present means of extraction and transport would prove remunerative. The increase in the outturn of bamboos was due to a large demand from sugarcane planters, to leasing out of coupes, and to the rate for dry bamboos having been reduced in the Southern Circle. There was an increase in the value of free grazing allowed, but notwithstanding this the grazing receipts continued to expand.

Bombay.—The outturn of timber and other forest produce extracted during the year is summarised in the following table :—

Agency of removal.	Timber.	Fuel.	Total wood.	Bamboos.	Sandal-wood.	Grass and grazing.	Minor produce.
	C. ft.	C. ft.	C. ft.	No.	R	R	R
Government . .	1,225,035	4,608,999	5,834,034	94,843	11,405	...	71,639
Purchasers . .	2,278,606	23,205,611	25,484,217	4,229,318	3,193	2,71,474	73,354
Free-grantees . .	103,862	38,457	142,319	23,102	...	8,262	2,795
Right and privilege-holders.	44,506	10,629,825	10,674,331	315,032	...	2,27,791	27,109
TOTAL 1901-02 .	3,652,009	38,482,892	42,134,901	4,662,295	14,598	5,07,527	1,75,897
TOTAL 1900-01 .	3,538,618	37,617,023	41,145,641	4,373,249	12,547	5,61,231	1,40,336

Under every head except grass and grazing an increase occurred, no doubt due in great part to the gradual recovery of the presidency from famine.

It is observed that the stocks in the various depôts have been reduced, and this must be considered sound policy even although the prices may not rise to the level of former years. The Conservator of the Southern Circle notes that Kanara teak has risen in public estimation, and is now much appreciated in the market.

CHAPTER IV.

Financial Results.

31. The gross revenue realized was R1,78,23,715 as compared with R1,97,70,493 in the previous year, and R1,86,94,125, the average of the previous five years. The surplus was R70,77,327 against R86,10,453 in 1900-01, and R82,02,221 in the last quinquennial period.

The revenue and expenditure for the year under review, compared with the results of the previous three years and of the quinquennial periods since 1873-74, are given below:—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to Gross Revenue.
	R	R	Per cent.
1873-74 to 1877-78	67,23,191	44,76,303	66
1878-79 to 1882-83	79,15,956	52,09,538	66
1883-84 to 1887-88	1,10,59,434	71,42,382	64
1888-89 to 1892-93	1,51,86,115	82,61,176	55
1893-94 to 1897-98	1,74,50,655	96,57,496	55
1898-99	1,90,38,520	1,00,33,920	53
1899-1900	1,90,09,610	1,10,24,690	58
1900-01	1,97,70,493	1,11,60,040	56
1901-02	1,78,23,715	1,07,46,388	60

The gross revenue was thus some 19½ lakhs below that of the preceding year and more than 8½ lakhs lower than that of the preceding quinquennial period while the net surplus was about 15½ lakhs less than in 1900-01, and 10½ lakhs less than the average of the previous five years.

This decrease in the receipts and surplus is referable to the less favourable results obtained in Burma where the gross revenue showed a decline of nearly 22 lakhs and the surplus decreased in consequence by 21¾ lakhs. This falling off is due not to a diminishing supply of timber or to a want of demand in the markets of the world but chiefly to delays in arrivals at the ports of export on account of unfavourable seasons closing the water-ways prematurely. Taking into account the many improvements that are annually being introduced into forest management, and the capital outlay that is still inevitable on survey, settlement, demarcation, communications, etc., it is obvious that the percentage of expenditure to gross revenue must rise with any temporary decrease in receipts, but there is little doubt that as the organization of the Indian forests becomes more complete and capital expenditure consequently diminishes, the annual surplus obtained will approach that yielded by the best managed forests abroad. That this will be the case is the more certain when it is remembered that the minor products of the Indian forests are as yet little known and that investigation into their occurrence and commercial value is still in its infancy. The attempt to pursue these investigations with the aid of a staff already fully occupied in the protection of the forests and in exploiting their major products must greatly restrict the sphere within which the Department has to confine its investigation, but with careful research directed

by men of experience and business capacity it is probable that the true value of the various economic products of the forests will, by degrees, be ascertained and markets created for their disposal.

32. The following table compares the revenue and surplus in each province, with the average realized during the previous five years :—

Province.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1901-02.	Average for preceding 5 years.	1901-02.	Average for preceding 5 years.	1901-02.	Average for preceding 5 years.		
	R	R	R	R	R	R	Per cent.	R
Imperial	3,484	9,864	...	...	76,055	75,905	...	...
Bengal	12,92,237	11,80,938	6,35,106	5,91,774	...	...	49·1	47
United Provinces of Agra and Oudh	17,15,508	16,15,946	7,06,769	5,75,555	...	...	41·2	171
Punjab	14,47,558	12,80,446	5,09,223	3,86,554	...	...	35·2	54
Burma	58,73,938	75,62,218	32,37,481	51,91,583	...	...	54·9	30
Central Provinces	11,15,723	8,66,158	1,40,506	...	...	77,034	12·6	7
Assam	5,12,963	4,67,412	1,83,851	1,51,150	...	...	35·8	9
Coorg	1,70,242	1,35,797	87,909	59,022	...	...	51·6	139
Ajmer	6,865	12,629	...	...	9,062	4,373	...	...
North-West Frontier Province	13,012	...	...	...	6,496	...	...	...
Baluchistan	14,712	15,887	...	...	9,768	12,671	...	...
Andamans	2,66,903	3,12,805	62,236	1,16,124	...	...	23·3	32
Forest School	3,545	3,001	...	...	72,745	64,290	...	...
Forest Surveys (Imperial)	473	331	...	...	33,257	33,241	...	...
Total	1,24,37,163	1,33,63,432	53,45,696	68,04,248	...	...	42·9	30
Berar	4,63,393	4,27,758	2,37,706	89,064	...	...	51·3	60
Total Bengal Presidency	1,29,00,556	1,37,91,190	55,83,402	68,93,312	...	...	44·3	30
Madras	25,43,430	22,38,560	8,33,876	6,24,404	...	...	32·8	43
Bombay	23,79,729	26,64,250	6,60,049	5,80,527	...	...	27·7	45
GRAND TOTAL IN 1901-02	1,78,23,715	1,86,94,000	70,77,327	80,98,243	...	...	39·7	33
„ „ „ 1900-01	1,97,70,493	1,81,59,902	86,10,453	84,98,918	...	...	43·5	41

Increases in gross revenue are shown by Bengal, the United Provinces, the Punjab, Coorg, the Central Provinces, Berar and Madras, the most noticeable occurring in the three latter provinces, and indicating, it is hoped, in the case of Berar and the Central Provinces, the gradual recovery from famine and trade depression that have of late been so marked a feature in the conditions of Central India.

As noted above the gross revenue in Burma fell off very considerably owing to an abnormally bad floating season and the falling in of large timber contracts. The Bombay forests yielded a disappointing revenue, and the Government of India have recently remarked on the fact that many Divisions showed a loss on the working of the year. Attention is thus attracted to the large net revenue per square mile in the United Provinces, which proves the careful administration that there obtains and the intensity of working

rendered possible by the presence of good markets in that province. It is also worthy of remark that, even without any special action taken with a view to increasing the output or fostering trade, some 25 per cent. of the gross revenue of our forests is already obtained from products other than wood.

33. An examination of the table appended will show to what extent capital expenditure and outlay on actual working has been incurred during the year under review, in comparison with the gross revenue obtained :—

FINANCIAL RESULTS.

				Account. R	
Gross Receipts	(a) Wood			1,34,53,449	
	(b) Minor forest produce			12,87,401	
	(c) Forest stamps and commutation fees for forest produce			7,05,051	
	(d) Grazing			14,41,506	
	(e) Revenue from forests not managed by Government			4,01,647	
	(f) Miscellaneous			5,34,661	
			TOTAL REVENUE	1,78,23,715	
				Amount. R	Proportion of Expenditure to gross Revenue. Per cent.
Expenditure	A Recurring	(a) Administration.	(i) Superior Staff	22,17,789	12·4
			(ii) Exchange compensation allowance.	84,997	·5
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).	19,01,415	10·7
			(iv) Office Establishments (including Contingencies).	9,27,731	5·2
		(b) Working	(1) Extraction	29,99,495	16·8
			(2) Roads and Buildings	5,18,480	2·9
			(3) Fire-protection	4,11,496	2·3
			(4) Cultural operations	3,68,438	2·0
			(5) Live-stock, stores and plant.	3,19,933	1·8
			(6) Working-plans *	60,573	·3
			(7) Rent for leased forests	2,06,880	1·2
			(8) Miscellaneous	96,544	·5
		(c) Expenditure on realization of revenue from forests not managed by Government.		33,790	·2
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School.)		76,290	·4
			TOTAL	1,02,13,651	57·3
	B Extraordinary	(e) Forest Settlement		40,324	·2
		(f) Forest Surveys		3,67,888	2·0
		(g) Forest Demarcation		1,24,325	·7
			TOTAL	5,32,537	2·9
			GRAND TOTAL EXPENDITURE	1,07,46,388	60·3
			Net Revenue	70,77,327	39·7

* Exclusive of "B" charges.

34. The estimated value of forest produce for which no credit has been taken financially, and which was given away free or at reduced rates to right-holders and under free grants is shown in the table below :—

Province	Timber.	Fuel.	Bamboos.	Minor Produce.	Grass and Grazing.	Total.
	R	R	R	R	R	R
Bengal	13,719	87,787	9,459	31,067	90,740	2,32,772
United Provinces of Agra and Oudh	57,491	54,914	708	5,906	(a) 64,414	1,83,433
Punjab	46,475	3,62,326	1	47,026	2,94,982	7,50,810
Burma	1,02,266	12,955	7,939	16,539	39,356	1,77,955
Central Provinces (b)	409	2,345	547	7,387	3,085	13,773
Assam	57,370	74,051	6,304	2,10,782	88,562	4,37,069
Coorg	365	...	271	...	656	1,292
Ajmer	2,273	344	750	123	(c) 25,067	28,557
North-West Frontier Province	...	(d)	...	50	8,599	8,649
Baluchistan	702	17	...	18	9,933	10,670
Andamans	39,023	16,231	243	671	...	56,168
Berar	56,130	46,103	20,228	9,382	70,741	2,02,584
Total Bengal Presidency	3,76,223	6,57,073	46,350	3,27,961	6,96,135	21,03,732
„ Madras „	6,443	10,585	1,532	38,978	(e) 6,346	63,884
„ Bombay „	19,537	1,61,482	4,068	30,904	(f) 2,37,053	4,53,164
Grand Total 1901-02	4,02,203	8,29,140	51,970	3,97,833	9,39,534	26,20,780
Grand Total 1900-01	7,64,549	9,23,233	88,561	4,27,129	11,06,336	33,09,808

(a) The figure given at Appendix A, page CIV, of the United Provinces Report differs considerably with that given in Form No. 55 for the Oudh Circle.

(b) The Report of the Southern Circle, Central Provinces, does not contain the statement prescribed in Inspector General of Forests' Circular No. 6, dated 5th March 1897. The figures in the above table have, therefore, been compiled from paragraph 71 of the Report and Form No. 59.

(c) Includes R574 shown in Form No. 58, under "Right-holders and Free-grantees." The table under paragraph 41 of the Report does not furnish information regarding "Minor produce".

(d) The value of 40,801 cubic feet of fuel removed by free grantees and right-holders has not been given, nor has the statement prescribed in Inspector General of Forests' Circular No. 6, dated 5th March 1897, been embodied in the Report.

(e) This figure differs from that given in Form No. 58.

(f) This figure differs considerably from that given in Form No. 55.

These figures are, however, estimates only and appear to be in many cases unreliable. Thus in several instances in Circle Reports the amount shown as foregone under fodder, grass and grazing does not correspond with the figures given in the table at page 23, and in future it would be well if Conservators were to scrutinize and compare these two statements.

The most notable increase over the figures of 1900-01 is perhaps in Ajmer where the amount of produce given away free on account of the prevailing drought has nearly doubled. Considerable decreases have occurred in the Central Provinces (from R1,87,000 worth to R13,000) and Bombay (from R9,46,000 worth to R4,53,000). These figures afford further evidence that in these two provinces the people are in a better position to pay for forest produce

and that the effects of famine are abating. The value of produce for which no credit has been taken financially and which has been given away free, works out to nearly 15 per cent. of the gross revenue of the Department. In reality however, it is very considerably more, as a low value, generally half the local selling rate, has been put upon it for purposes of estimation. This liberality on the part of the Indian Government is further proof, should any such be needed, of the extent to which the management of the State forests is carried out in the interests of the cultivator and poorer classes.

CHAPTER V.

I.—ESTABLISHMENT.

During the year under review eleven officers of the Imperial Service retired including five Conservators, while three died. In the Provincial Service one officer retired. There were ten Conservators on leave during the whole or part of the year as well as the Inspector-General of Forests, Mr. H. C. Hill, whose untimely death since the close of the year removed one of the ablest officers in the Department, and caused the deepest regret to many past and present members of it with whom he was intimately associated both professionally and by ties of personal friendship.

To meet the demands of Native States eight Imperial and fourteen Provincial Service officers were on deputation during whole or part of the year, details of which are given in list attached—

Officers on Foreign Service.

Imperial Service.		Provincial Service.	
		(i) In India.	
1. Mr. McDonell (Central Provinces).	Kashmir.	1. Mr. Dalal (Bombay) . .	Rajpipla State.
2. „ Mayes (Punjab) . .	„	2. „ Muttannah (Madras) .	Mysore.
3. „ Pigot (Assam) . .	Mysore and Alwar	3. „ Hardie („) .	Jeypore estate.
4. „ Blunt (Central Provinces)	Alwar.	4. „ Chetti („) .	Cochin.
		5. „ Keshva Nand (United Provinces).	Tehri.
		6. „ Daulat Ram (Punjab) .	Kashmir.
		7. „ Jaikishen („) .	Jubal.
		8. „ Sunder Dass („) .	Kotah.
		9. „ Gilmore (Central Provinces)	Nizam's Dominions.
		10. „ Hunt („) .	Bastar.
		11. „ Anderson (Burma) .	Port Blair Commission.
		(ii) In the Colonies.	
1. Mr. Burn-Murdoch (Burma)	Federated Malay States.	1. Mr. Rogers (Burma) .	Trinidad.
		2. „ Craddock („) .	Federated Malay States.
		(iii) In Foreign States.	
1. Mr. Slade (Burma) . .	Siam.	1. Mr. Thompson (Central Provinces).	Siam.
2. „ Tottenham (Burma) .	„		
3. „ Witt (Central Provinces)	„		

Now that Native States are annually paying more attention to the conservation of their forests, it is a matter for regret that assistance asked for is not always forthcoming owing to pressure of work in the Department, and thus applications from Rewah, Bharatpur, Banswara and Pertabgarh and the Federated Malay States had to be refused. Mr. E. P. Stebbing, Deputy Conservator, Bengal, was on deputation throughout the year as Forest Entomologist, and made considerable progress in the identification and life history of insects harmful to tree growth, publishing a useful volume of Departmental notes on the subject, to be followed by others as his researches proceed.

Other useful publications by members of the Department, were a Manual of Mathematics prepared by Mr. A. P. Grenfell and a volume on Forest Engineering by Mr. C. G. Rogers. The Inspector-General issued from his office inspection notes and suggestions as the result of his tours in Bombay, Coorg, the Central Provinces and Bengal.

In Burma a new Forest Act applicable both to the Lower and Upper Provinces received the assent of the Governor-General.

II.—Experiments.

Tannin extract.—Machinery for the extraction of tannin from bark was erected at Rangoon at a cost of about 1 lakh of rupees; the preparation of this product of quality suitable for the market is still in an experimental stage. With a view to supplying the Cawnpore leather factories with babul bark, an officer was deputed to that part of the country to examine into the feasibility of making large babul plantations on the extensive areas of waste land that there exist. His report has been received since the close of the year.

Spike disease.—Investigation was commenced into the prevalence of spike disease among the sandal trees in the Coorg forests which is suspected to be due to a parasitic growth attacking the roots of the trees and spreading rapidly from tree to tree.

Exotics.—Experimental sowings of exotics were continued in the Punjab but were hardly successful, while the seedlings raised in former years are not on the whole thriving.

The attempt to introduce exotics is of doubtful utility save in those cases where the cultivation of indigenous trees suitable for the required purpose has after trial proved unsuccessful.

Rubber.—Considerable progress was made with the Mergui rubber plantation in the Tenasserim Circle of Burma. The remarks made by the Conservator show what was done during the year and are reproduced below :—

The total cost of the Mergui Rubber Plantation, including the experimental garden, inclusive of all establishment, buildings, etc., amounted to R23,6 50-6-7, against which, by the sale of rubber and other minor produce, R871-10-0 were realized.

For planting up with *Hevea Braziliensis* 772 acres of land are cleared, *i.e.*, 742 acres completely and 30 acres in patches in high forest at a total cost of R8,235, or R10-10-0 per acre, and of this 663 acres have been planted up with *Hevea*, seedlings not being available for the rest.

The clearing of land at Mergui, where there is rain every month throughout the year, is most difficult; labour is scarce; the felled material cannot be disposed of and cannot be satisfactorily burnt (although recently other planters who are experimenting with rubber have expressed their opinion that there is no necessity to get rid of the felled material provided sufficient space is obtained to plant out the seedlings).

The success of the experiment cannot yet be determined, as the seedlings which average some 3 feet in height on being transplanted die back and have to throw out new shoots. The latest reports, however, are to the effect that they are doing satisfactorily, and provided that they are not eaten back by deer there is no reason why they should not do well. There is considerable difficulty in obtaining sufficient seed, and it is doubtful whether it will be possible to work up to 1,000 acres per annum, and for a few years I am of opinion that some 600 to 700 acres is the utmost it will be possible to plant out.

In the surrounding high forest small patches aggregating 30 acres in extent have been cleared, in each of which some seven or eight seeds will be planted to see if the *Hevea* can establish itself under shade, and in the open, half an acre has been planted with seeds sown at stake. If this succeeds considerable expense will be saved.

In addition to the above 400 cuttings of *Parameria Glandulifera*, 30 *Dichopsis Gutta* and 12 *Willoughbeia firma* were put out and are doing well; 5 *Castilloa* and 2 *Kickxia Africana* are also thriving.

In Assam the Charduar rubber plantation was extended by 271 acres.

Experimental tapping operations were continued, 5,264 trees of an average age of 22 years were tapped yielding 6,740 lbs. of rubber; owing, however, to unfavourable market conditions the rubber was not sold.

In the Kamrup Division 4,252 trees were tapped yielding 2,054 lbs. of rubber which also remained unsold.

In Bengal *Ficus elastica* was planted on a small scale and some seeds of *Hevea braziliensis* sown, the success, however, of the experiment appears doubtful, and the localities do not appear to have been always well chosen.

Examination of the latices of the various rubber-producing species was made by the Agricultural Chemist, but the results not published by the close of the year.

Lac.—Endeavours were made to encourage the cultivation of lac in various localities, but the results have been unsatisfactory, and it is generally recognized that the zemindari and more open forests are better adapted to its cultivation than the protected timber reserves.

Applications for seeds of various kinds were received from the Cape, the Soudan and German East Africa, and the various Conservators to whom indents were forwarded took much trouble in meeting them and in endeavouring to collect and despatch suitable seeds.

The usual collections of botanical specimens and economic products were made, and despatched to the Reporter on Economic Products, etc., during the year. In the absence of a Forest Bureau of Enquiry and Investigation, these collections were a source of much labour and are often necessarily incomplete, for it is with great difficulty that executive forest officers are able to afford the time to give the matter the attention that its scientific and economic importance merits; the more so as requests for specimens for exhibition or trade purposes are becoming yearly more frequent.

III.—Exports of Forest Produce.

The following statement furnished by the Director General of Statistics shows the amounts and value of various forest products exported from British India during the year 1901-02:—

Articles of forest produce.	Quantity in tons of 20 cwt.; in the case of teak, cubic tons.		Valuation at port of shipment in 1901-02.	
	Average of five years, 1896-97 to 1900-01.	In 1901-02.	Total.	Per ton.
			R	R
Caoutchouc	339	207	6,04,197	2,919
Lac—Button	1,564	1,621	18,41,776	1,136
Lac—Shell	9,090	6,161	77,03,615	1,250
Lac—Stick and other kinds	165	71	59,888	843
Lac-dye	2 cwt.	...	...	...
Sandal, ebony, and other ornamental woods	Information	not available	8,45,261	...
Cutch and gambier	5,108	3,308	12,08,975	365
Myrabolams	44,953	54,259	35,63,652	66
Teak	75,130	60,671	71,53,855	118
Cardamoms	59	65	2,25,493	3,469
Total 1901-02	...	...	2,32,06,712	...
Total 1900-01	...	...	2,72,17,094	...
Decrease in 1901-02	...	...	40,10,382	...

The amount of caoutchouc exported was about 170 tons less than in 1900-01. This decrease is probably explained by the fall in price of more than ₹1,000 per ton, which tended to prevent producers putting their stocks on the market.

The export of lac fell off by some 3,500 tons, the prices obtained per ton were higher owing to the short production.

The amount of all the other items exported decreased with the exception of myrabolams, which showed an increase of 7,000 tons.

The Forest Department has little control over the export prices of miscellaneous forest products which pass through many hands before arriving at the port of shipment. Thus efforts should be directed towards the greatest production of valuable material and its speedy disposal on the most remunerative terms that can be at the time locally obtained. The fact that the total value of the produce exported was some 40 lakhs of rupees less than in 1900-01 is doubtless unsatisfactory, though it is possible that the decrease may be of a temporary character only and due principally to the action of wholesale merchants in their dealings with foreign markets.

IV.—Technical Education and Recruitment.

Five officers, having completed their course of training at Cooper's Hill, arrived in India at the close of 1901 and were posted to Bengal, Burma, Assam, Madras and Bombay, respectively. At the entrance examination, Cooper's Hill, held in June 1902, eight candidates were selected and are now undergoing the course of training. The competition for the Forest appointments offered by the Government of India, has not been satisfactory.

The post of Director of the Imperial Forest School at Dehra Dun was ably filled by Mr. J. W. Oliver, and Mr. F. Gleadow who had been Deputy Director for some six years was replaced in February 1902 by Mr. H. Jackson, Deputy Conservator, on the Burma list. At the entrance examination for the Upper Class students held in October, 51 candidates qualified and 29 subsequently joined the school. The total number of admissions was raised to 35 by permission being given to 2 rangers, already in the Department, and 4 qualified candidates of the previous year, to follow the course. The number of students admitted to the Lower Class was 10. At the final examination held in March 1902, only 3 out of 43 students who presented themselves failed to satisfy the examining board.

The Bombay Government was approached during the year with a view to replacing the instruction given to its Forest Subordinates at Poona by the more special training of the Dehra Dun School, and subsequently it was decided to adopt this suggestion and in future to depute to Dehra all forest students from that Presidency.

At the Tharrawaddy Forest School, Burma, 12 students presented themselves for examination before the Board of Control. It has been proposed to increase the number of admissions from 12 to 20, and to improve the course of training, and these recommendations were before the Government of India at the close of the year. Manuals published in English and Burmese, and prepared by Mr. E. M. Buchanan and Ranger Hatim Tai have lately been received from the press, and it is hoped that these publications will be the means of spreading a knowledge of forestry in the Department as well as of rendering the school course more easy to follow by the students. The post of Director of the

Tharrawaddy School was held by three officers during the year. It entails much extra work and responsibility in addition to that incidental to the management of the most important Division in the Province.

V.—Forest Administration in Native States.

At the time of going to press reports from Kashmir, Mysore and Jodhpur only have been received.

Jammu and Kashmir State.—The State forests remained under the control and management of Mr. J. C. McDonnell who has been in charge for the past 11 years.

The area of the State forests appears to be 2,383 square miles, an addition of 205 square miles on the figures of the previous year. Forest settlement, as understood in India, appears to make little progress; but until the rights of user have been enquired into and suitably defined it is difficult to make progress with demarcation and the preparation of working-plans. Demarcation was continued during the year, but owing to the want of qualified officers, the progress made was somewhat slow, still the area of completely demarcated forests rose from 1,190 square miles to 1,493 square miles, and good work was done in erecting permanent boundary marks. Boundary surveys were carried out over an area of 282 square miles during the year, but the Conservator has doubts as to whether the work was efficiently performed, and states that it is probable that much will be found incorrect when a regular survey comes to be made. No progress was made in working-plans. With the large area of demarcated forests the question of the value of simple working-plans which will provide for the continuance of a suitable system of management appears to be a matter for consideration; the necessity for gauging the possibilities of the forest areas with a view to full utilisation of their produce would in itself justify steps being taken in the direction. It appears that the forest establishment has not the time at its disposal to devote to the preparation of working-plans nor indeed was it entertained for that purpose, and until the creation of a special staff is sanctioned it is improbable that any progress in this most important branch of Forest administration will be made. The matter is one that calls for early attention on the part of the Durbar, and a temporary increased expenditure in this direction would be fully justified.

There appears to be no systematic fire-protection undertaken as the expenditure under this head is returned as *nil*, nor does this seem to be urgently called for owing to the immunity of the forests from fire. Only 6·89 miles were burnt during the year though the number of small fires is returned at 220. Natural reproduction is reported as good, though much damage is in places done to the seedlings by unregulated grazing and lopping. Artificial reproduction was attempted on a small scale only and did not meet with great success. The expenditure on roads and buildings aggregated some R6,000, and much remains to be done in this respect.

The total outturn of timber and fuel is returned at 35,820,000 cubic feet as against 36,168,000 cubic feet in 1900-01. Out of this amount, 31,227,000 cubic feet were removed under free grants or at privileged rates, while 2,962,000 cubic feet were removed by State agency and 1,631,000 cubic feet by purchasers. With the very limited forest establishment that the State has at its command it appears not improbable that the employment of departmental agency restricts the outturn of the forest and that were contractors employed to

a larger extent a larger area might be exploited. The greater part of the revenue was derived from deodar logs and sleepers, the disposals of the latter aggregating 722,119 cubic feet.

The average price realized for deodar sleepers was R2-6-5 which is much lower than in former years owing to the timber being of inferior quality.

The value of timber and fuel granted free was some R7,70,000, or more than the net revenue of the forests; a fact that further indicates the need that exists in Kashmir for an enquiry into rights and their settlement on a permanent basis.

The gross revenue of the year amounted to 9 lakhs of rupees, while the expenditure was R2,78,000 leaving a surplus of R6,22,000 or R44,000 in excess of the previous year, and more than a lakh over the average of the eleven preceding years. At the same time it is noted that this increased surplus was partly due to the sale of the large stock of timber in the depôts, the value of which decreased during the year by more than 2½ lakhs of rupees. Still the fact that the surplus is so large representing 70 per cent. of the gross revenue, proves the value of the Kashmir forests even when perhaps not worked to the full extent of their possibility, and there is little room to doubt that a more liberal expenditure is urgently called for on settlements, working-plans and works of improvement and that this expenditure would in the future be a source of benefit to the State. In order to undertake these operations it is essential that the controlling establishment should be strengthened and that men with some forest training should be introduced into the Executive Staff. It is therefore satisfactory to note that three students have been deputed by the Durbar to the Forest School at Dehra Dun.

Mysore.—The charge of the State forests was held by Mr. J. L. Pigot, Deputy Conservator, 1st grade, on the India list, on deputation to Mysore, for the first-half of the year; for the remaining six months of the year, Mr. M. Muttannah, Extra-Deputy Conservator, lent to the State by the Madras Government, officiated pending the appointment of a permanent incumbent of the post, and is the author of the Mysore Forest Administration Report for 1901-02.

The area of the State forests was 1,948 square miles at the close of the year, and the progress made in settlement, survey and demarcation was somewhat slow; it is, however, satisfactory to learn that the Government recognizes the importance of these operations and that when a competent staff is available they will be undertaken on a much larger scale.

An extension of working-plans seems called for, but areas which it is proposed to put under systematic working require to be carefully chosen with reference to existing markets or demands which it may be possible to create. It is, for instance, understood that the gold mining industry of Mysore annually consumes large quantities of timber and fuel, part of which is brought a long distance, and the question of systematically working a large area of forest solely in the interests of the mining industry is well worthy of careful consideration as it would doubtless be to the benefit both of consumers and of the State.

Natural reproduction has suffered much from the drought; it is, however, hardly satisfactory to read that fellings have, in some instances, been so heavy as to leave no seed bearers, resulting in the complete denudation of the exploited area. The Officiating Conservator has not recorded what steps he took to punish

his staff for permitting this or what precautions have since been taken to prevent its recurrence. Artificial reproduction, especially the raising of young sandal trees, should be conducted on some fixed and well-considered scheme, and the cordial co-operation of the people outside the forest areas enlisted for the success of an annual planting programme must depend much on the help given by the district authorities to the Forest Staff.

The amount of sandal wood sold during the year was 3,234 tons as against 2,603 tons in 1900-01, the revenue realised being R9,90,000 against R7,64,000. The price per ton fell from R469 to R441 owing to a larger quantity of inferior wood having been included in lots offered for sale. The total receipts amounted to R13,98,000 and charges to R4,48,000 as against R12,48,000 and R3,78,000 in 1900-01. The revenue from timber other than sandal fell owing to depressed markets and that from minor produce also showed a decrease. The fall in revenue is probably of a temporary nature only and has been occasioned, as in other parts of India, by the prevalence of plague and famine.

It is noticeable that the State Resolution recognizes that sandal wood revenue is outside forest revenue proper, and that revenue obtained from this source should not be allowed to influence the financial results of forest administration. It is satisfactory to see the matter considered from this point of view under which the gross forest revenue becomes R4,17,000 giving a surplus over expenditure of R82,000.

The comparatively large number of men holding the Dehra Dun certificate in the Mysore Forest Department, proves the endeavour thatis made to recruit a suitable staff. It is hardly open to doubt that when the men trained at Dehra Dun have, under competent supervision, gained more experience in executive work, the well-advised policy of the Mysore Durbar in thus affording them a practical forest education will be amply justified by the results obtained.

Jodhpur.—This report gives somewhat meagre information regarding forest administration in Jodhpur. The area of the State and Jagir forests stands at 347 square miles, and it is satisfactory to note that progress was made in their survey and demarcation.

A small working-plan has been prepared but owing to absence of demand remains a dead letter; for the same reason it is not proposed to proceed with the preparation of others. The demand in grazing is unusually light, the return of the numbers of all cattle standing at 7,600.

Fire protection is very successful, the area burnt being only ·3 per cent. of the total area of the forests. Natural and artificial reproduction are unsatisfactory, owing to a great extent to the drought.

The outturn of the year of timber and fuel amounted to 357,000 cubic feet as against 359,000 cubic feet in 1900-01. The demand for timber appears to be increasing, double the amount being removed compared to the previous year. Removals of fuel by State agency fell to a very low figure owing to the difficulty that was experienced in selling the large accumulation of the previous two years.

The financial results showed an improvement, the gross revenue being R22,000, or some R2,500 in excess of what it was in 1900-01, the surplus revenue being R4,000. The Superintendent of the Jodhpur forests also looks after State arboriculture, roadside planting, the maintenance of the State Gardens, and has attached to his report a brief account of what he has been

able to do in these respects, which though interesting is not of great value from a forest point of view.

Alwar.—Mr. J. L. Pigot, who was deputed to Alwar for three months to examine the State forests, furnished an interesting report on them with suggestions for their future administration and management.

APPEN

Summary of the Revenue and Expenditure of the

Budget Heads.	Bengal Presidency (British										
	Imperial.	Bengal.	United Provinces of Agra and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces.	Assam.	Coorg.	Ajmer.	North-West Frontier Province.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	2,128	1,03,234	5,61,565	11,13,291	19,80,558	5,12,091	1,49,128	12,785	1,29,934	1,208	2,044
II.—Timber and other produce removed from the forests by consumers or purchasers.	1,356	11,35,626	10,78,582	2,63,465	11,54,365	16,78,882	9,22,810	3,75,294	39,281	5,134	9,513
III.—Drift and waif wood and confiscated forest produce.	...	4,812	18,810	27,939	1,00,584	29,485	1,573	7,156	88	50	29
IV.—Revenue from forests not managed by Government.	...	...	13,843	2,117	3,01,603	...	...	68,364	...	...	217
V.—Miscellaneous	...	38,565	43,203	40,743	69,313	47,024	41,913	49,364	889	473	1,211
Total Revenue .	3,484	12,92,237	17,15,506	14,47,555	36,06,453	22,67,485	11,15,723	5,12,963	1,70,242	6,865	13,012
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	...	54,272	2,72,663	4,55,701	4,91,355	3,06,772	1,44,326	9,614	16,119	590	4,843
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	52,617	27,913	1,408	20,761	14,005	71,639	2,962	...	23	87
III.—Drift and waif wood and confiscated forest produce.	...	1,913	5,856	8,165	44,535	26,383	35	46	...	...	38
IV.—Revenue from forests not managed by Government.	...	...	3,912	...	5,227	...	...	24,150	...	...	...
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	59,000	26,711	43,118	...	...	...	14,312	...	...	3,252
VI.—Live-stock, stores, tools, and plant	...	37,177	16,480	4,731	59,912	29,066	20,666	15,857	730	352	16
VII.—Communications and buildings .	...	58,969	1,15,124	31,057	39,686	16,159	27,246	27,552	3,312	826	1,462
VIII.—Demarcation, improvement, and extension of forests.	304	60,923	1,08,639	45,322	2,24,356	2,36,592	1,15,031	20,807	16,703	2,702	534
IX.—Miscellaneous	...	4,558	4,196	2,716	9,009	7,671	5,175	4,516	731	24	40
Total A.—Conservancy and Works .	304	3,38,564	5,82,134	5,91,248	8,91,971	6,96,653	3,88,618	1,20,836	37,756	4,519	10,382
B.—Establishments.											
I.—Salaries	61,069	2,69,401	3,49,642	2,75,969	4,37,940	4,34,727	5,07,929	1,72,689	38,943	9,723	7,197
II.—Travelling allowances . . .	14,753	43,560	47,931	47,576	64,774	69,542	46,702	25,326	5,231	944	1,181
III.—Contingencies	3,413	15,606	29,032	23,542	29,651	19,049	35,868	16,261	1,303	741	550
Total B.—Establishments .	79,235	3,18,567	4,26,605	3,47,087	5,31,465	5,23,368	5,91,599	2,08,276	44,477	11,408	8,928
Grand Total of Expenditure .	79,539	6,57,131	10,08,739	9,38,335	14,26,436	12,20,021	9,75,217	3,29,112	82,233	15,927	19,310
Surplus .	...	6,35,106	7,06,769	5,09,220	21,80,017	10,47,464	1,40,506	1,83,851	87,909	...	...
Deficit .	76,055	...	...	...	...	...	...	...	...	9,062	6,298

DIX I.

Forest Department in India for the year 1901-1902.

Territories.)				Total Bengal Presidency (British Territories).	Madras.	Bombay.	Total British Provinces.	Berar.	Grand total.	Budget Heads.
Baluchistan.	Andamans.	Forest School.	Forest Surveys (Imperial).							
R	R	R	R	R	R	R	R	R	R	REVENUE.
3,165	2,65,204	...	...	43,31,377	5,77,270	11,56,677	65,79,468	50	65,79,518	I.—Timber and other produce removed from the forests by Government agency.
1,429	1,526	...	...	66,67,252	18,31,650	11,46,762	96,45,613	4,56,019	1,01,01,632	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	...	1,90,525	16,691	6,104	2,13,620	1,645	2,15,265	III.—Drift and waif wood and confiscated forest produce.
3,670	...	...	...	3,95,519	...	6,128	4,01,647	...	4,01,647	IV.—Revenue from forests not managed by Government.
257	173	3,545	473	5,28,974	1,17,719	64,118	5,28,974	5,679	5,34,653	V.—Miscellaneous.
14,712	2,66,903	3,545	473	1,26,16,947	25,43,430	23,79,729	1,73,60,322	4,63,393	1,78,23,715	Total Revenue.
										EXPENDITURE.
										A.—Conservancy and Works.
1,722	97,857	...	...	18,54,734	2,71,198	4,01,259	25,27,189	324	25,27,513	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	...	2,22,467	1,06,133	36,727	3,65,327	17,131	3,82,458	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	...	87,331	1,958	235	89,524	...	89,524	III.—Drift and waif wood and confiscated forest produce.
501	...	...	...	33,790	...	...	33,790	...	33,790	IV.—Revenue from forests not managed by Government.
...	...	...	...	1,45,823	20,948	24,551	1,91,322	15,558	2,06,880	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
2	59,358	519	237	2,55,383	53,825	7,466	3,16,674	3,578	3,20,452	VI.—Live-stock, stores, tools and plant.
43	7,728	...	...	3,58,715	1,38,170	53,704	5,02,589	15,891	5,18,480	VII.—Communications and buildings.
85	180	...	5,420	8,37,986	2,78,232	2,27,536	13,33,546	24,498	13,63,044	VIII.—Demarcation, improvement, and extension of forests.
5	15,101	23,552	40	56,364	6,818	35,092	98,274	852	99,126	IX.—Miscellaneous.
2,358	1,80,224	3,101	5,747	38,52,615	8,44,270	7,66,550	55,63,435	77,832	55,41,267	Total A.—Conservancy and Works.
										B.—Establishments.
19,430	21,663	62,660	20,780	26,25,112	6,62,593	7,98,695	41,39,460	1,18,733	42,58,193	I.—Salaries.
2,321	2,232	6,747	771	5,81,591	1,45,015	1,09,225	6,35,831	18,417	6,54,248	II.—Travelling allowances.
371	348	3,782	6,492	1,79,149	57,676	45,210	2,82,035	10,705	2,92,740	III.—Contingencies.
22,122	24,443	73,189	27,983	33,85,852	8,65,284	9,53,130	50,57,266	1,47,855	52,05,121	Total B—Establishments.
24,480	2,04,667	76,290	33,730	71,91,467	17,09,554	17,19,680	1,05,20,701	2,25,687	1,07,46,388	Grand Total of Expenditure.
...	62,236	...	...	53,59,621	8,33,876	6,60,049	68,32,621	2,37,706	70,77,327	Surplus.
9,768	...	72,745	33,257	...	...	...	...	...	...	Deficit.

APPENDIX II.*

Revenue, Expenditure and Surplus of the Forest Department throughout India during the 25 years from 1877-78 to 1901-02.

REVENUE.

Provinces.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial †	1,36,772	16,736	17,211	13,237	27,407	30,732	32,907	26,571	11,703	4,126	4,817	4,917	4,759	6,570	6,688	5,249	2,680	5,960	2,590	4,100	19,138	17,510	6,960	2,163	3,184
Bengal	4,26,226	5,16,027	4,19,524	5,61,310	6,33,734	6,93,269	6,91,351	5,71,152	5,97,132	6,53,634	6,57,791	6,76,907	7,68,718	7,27,292	7,89,553	7,44,180	8,01,610	7,95,670	9,18,710	13,70,850	11,89,280	9,72,310	11,28,910	12,23,339	12,92,237
United Provinces of Agra and Oudh	12,03,308	11,25,752	10,39,966	9,42,223	10,96,604	10,13,103	10,11,333	15,72,319	14,61,495	15,13,556	12,37,151	14,62,802	17,15,159	16,37,879	17,21,514	16,52,540	17,09,800	16,58,250	16,08,310	14,14,820	13,96,670	15,62,010	15,15,710	15,65,163	17,15,503
Punjab	6,53,711	5,00,619	6,49,819	6,71,678	6,65,809	7,66,969	9,10,177	8,13,252	8,50,149	11,27,277	7,86,936	10,15,768	9,21,713	8,34,370	10,20,071	8,12,630	9,13,300	10,32,130	10,14,550	11,97,720	10,68,470	11,71,130	14,00,770	13,50,812	14,17,558
Burma (Lower)	16,03,022	11,37,562	11,00,190	15,16,613	22,31,804	25,63,696	25,09,275	16,70,982	20,23,259	19,95,667	22,18,897	26,09,305	31,31,716	26,17,671	23,52,115	25,13,370	31,89,150	32,71,200	31,14,550	31,18,770	40,85,270	42,22,950	43,03,230	45,43,263	36,06,453
Burma (Upper)	...	...	...	...	...	...	...	...	...	1,03,071	2,05,176	15,79,923	18,03,670	16,44,237	13,27,300	20,76,630	22,95,750	21,62,580	22,31,120	25,00,630	31,29,000	41,27,230	35,06,820	35,11,031	22,67,185
Central Provinces	6,83,910	3,52,862	10,66,721	8,50,139	11,72,231	9,77,617	9,91,769	10,27,202	10,36,291	9,57,410	10,13,369	11,80,605	11,56,181	12,13,461	13,59,900	12,30,850	11,38,160	10,68,830	9,96,910	7,73,370	7,80,050	9,95,100	8,19,200	9,63,062	11,15,723
Assam	1,31,308	1,61,779	1,64,335	1,63,997	1,65,054	2,12,005	2,11,515	1,80,411	1,95,656	2,12,011	2,67,212	3,03,822	2,79,498	2,26,793	2,36,119	2,82,630	4,23,500	4,25,090	4,25,090	4,26,446	3,81,820	3,58,180	5,63,100	5,49,521	5,17,563
Coorg	1,01,015	52,020	1,01,726	87,857	1,00,364	1,39,022	87,823	1,13,223	89,386	99,291	1,27,028	1,36,183	92,753	1,35,561	1,82,897	1,10,680	1,72,780	1,53,056	1,35,250	93,000	1,30,910	1,55,070	1,62,110	1,37,596	1,70,242
Ajmer	3,002	1,231	1,851	1,194	4,055	7,126	8,196	10,156	9,697	11,274	11,253	13,573	11,592	15,266	19,782	14,850	11,620	12,810	15,610	12,370	15,510	14,120	10,270	10,046	6,965
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13,012
Forest Surveys (Imperial)	...	62	38	272	...	344	36	234	202	241	40	315	220	2,194	257	520	250	80	510	400	220	290	420	327	473
Forest School	...	...	...	...	...	...	...	73	273	415	777	649	1,237	1,184	1,758	1,980	1,920	2,790	3,210	2,850	2,890	2,980	3,210	3,697	3,515
Andamans	1,301	5,561	2,437	27,734	48,497	70,553	21,762	17,713	23,911	21,370	1,01,062	1,06,675	1,62,195	1,58,226	2,72,383	3,69,350	4,41,750	1,14,530	1,32,120	2,62,270	4,23,710	2,29,460	2,09,600	2,77,886	2,66,903
Total	49,76,455	47,71,208	55,13,591	58,86,887	69,39,121	69,51,305	70,85,103	69,44,201	69,04,955	67,77,906	68,19,625	91,19,616	1,01,53,811	93,80,671	99,06,254	1,10,47,539	1,15,67,960	1,05,55,120	1,09,42,870	1,19,87,190	1,26,25,950	1,41,78,070	1,37,96,830	1,41,19,286	1,34,22,451
Madras	5,50,380	6,06,783	6,26,168	7,26,890	8,05,903	9,08,442	9,53,701	11,03,916	11,26,630	12,16,911	13,71,920	15,15,006	15,57,627	17,35,109	16,91,216	15,77,216	19,47,180	18,91,030	21,19,570	23,03,230	21,26,128	21,10,520	23,02,250	23,10,170	25,13,130
Bombay	12,61,523	11,81,894	15,21,712	15,22,897	18,23,117	20,50,353	25,01,103	27,74,942	33,66,226	30,22,676	30,32,577	28,50,190	31,37,696	32,33,220	22,44,619	22,09,510	27,91,350	37,50,030	25,26,670	30,32,710	25,16,660	27,95,158	29,15,220	29,62,529	22,78,729
Total (British India)	67,88,290	69,59,880	77,61,471	81,06,556	97,71,145	99,48,100	1,05,41,912	98,85,952	1,03,97,801	1,10,57,193	1,12,27,182	1,34,84,806	1,48,49,134	1,44,61,302	1,48,85,216	1,58,94,290	1,72,06,490	1,62,96,180	1,66,19,110	1,73,21,210	1,73,80,100	1,85,83,760	1,85,13,300	1,91,50,985	1,73,45,610
Berar	2,79,235	2,83,901	3,07,500	2,66,556	2,33,511	2,92,014	3,03,216	2,97,185	3,10,151	3,26,061	4,06,417	4,07,977	4,10,511	4,57,107	5,11,185	4,31,020	4,52,200	4,73,400	4,91,340	5,17,820	4,00,350	4,39,810	4,78,220	3,02,552	4,53,393
Forest Surveys (Berar)	...	...	...	...	...	...	...	931	671	651	596	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	14,376	16,616	5,903	5,752	6,089	14,962	14,031	14,063	5,993	13,857	15,721	20,600	19,800	28,730	16,300	14,930	15,160	15,010	14,920	17,060	16,956	14,712
Grand Total	70,67,525	63,43,781	80,68,971	83,87,818	99,26,272	97,45,153	1,08,51,832	1,01,89,170	1,12,05,315	1,13,98,486	1,16,47,258	1,39,98,451	1,52,93,572	1,49,67,135	1,54,17,010	1,63,44,340	1,77,13,620	1,67,83,880	1,70,99,380	1,78,66,210	1,77,95,490	1,90,37,530	1,90,00,618	1,97,70,993	1,74,23,715

* The figures in this statement have been revised by the Comptroller and Auditor-General.

† Includes certain Home receipts and undistributable and petty local items.

APPENDIX II—*continued.*

EXPENDITURE.

Provinces.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial *	98,099	63,955	73,840	65,291	77,635	87,263	93,266	96,300	88,215	86,290	78,626	86,199	81,311	85,519	65,718	1,07,270	80,810	81,950	80,410	72,950	81,300	85,460	96,550	83,578	73,539
Bengal	2,62,913	3,38,675	2,75,718	3,35,351	3,91,612	3,82,183	3,67,812	4,11,915	3,70,399	4,22,781	3,90,363	3,76,270	3,96,150	4,15,004	4,22,939	3,81,630	4,01,040	3,97,330	4,05,970	6,90,340	6,53,440	4,85,320	5,45,210	5,70,806	6,57,131
United Provinces of Agra and Oudh	7,23,925	8,09,977	7,16,594	6,79,574	9,16,212	8,30,025	10,41,235	10,20,101	9,74,519	9,19,540	8,30,715	8,44,541	9,63,151	9,19,196	9,58,211	9,22,540	8,63,020	9,26,310	9,32,900	9,05,310	9,17,850	9,72,030	9,52,380	9,63,435	10,08,729
Punjab	5,29,631	5,23,554	4,99,676	4,95,268	5,16,239	5,00,710	6,53,116	5,58,970	6,75,462	7,16,510	6,77,912	5,93,625	6,55,155	6,53,061	6,10,275	6,56,270	6,28,430	7,22,120	6,78,420	7,23,360	7,71,940	8,55,310	12,11,160	8,87,313	9,33,335
Burma (Lower)	8,58,231	7,18,402	7,53,150	7,12,568	11,50,224	1,12,23,955	12,17,824	12,12,233	11,50,952	10,75,820	10,32,691	12,31,941	13,32,844	10,86,471	13,25,121	12,63,250	13,11,610	13,78,230	13,57,710	15,03,200	14,01,110	15,29,570	15,01,470	15,21,766	16,26,436
Burma (Upper)	...	...	...	...	...	...	...	...	...	2,188	1,21,152	7,85,128	2,73,809	3,02,315	3,73,850	4,41,750	5,20,860	5,29,760	5,75,890	6,25,530	7,92,509	8,96,650	9,35,970	11,29,951	12,29,021
Central Provinces	3,22,091	3,53,754	3,22,571	4,05,582	4,97,613	4,12,287	4,36,058	4,55,821	4,15,432	4,59,293	5,52,239	6,68,097	6,06,445	7,35,551	8,03,915	8,51,160	9,32,190	9,76,060	9,52,340	9,50,960	9,21,440	8,71,230	10,41,440	9,30,763	9,75,217
Assam	1,01,153	1,26,028	1,32,829	1,42,725	1,65,361	1,71,823	1,90,562	1,97,099	2,11,194	2,12,287	2,26,892	2,03,108	2,57,129	2,83,812	2,67,525	2,64,070	2,58,220	2,72,010	2,66,140	2,82,040	2,83,830	3,05,360	3,57,110	3,47,972	3,29,112
Coorg	36,263	34,829	55,165	56,187	58,796	64,776	75,923	76,951	65,990	71,688	72,029	68,175	72,190	65,818	66,890	73,760	86,980	85,110	85,840	71,638	87,020	69,100	71,220	70,905	82,333
Ajmer	14,926	13,445	12,750	12,123	12,951	11,281	15,571	16,316	16,159	20,714	18,997	15,676	12,701	12,720	13,986	15,080	15,998	14,900	15,730	22,010	18,670	16,300	15,350	16,782	15,927
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19,510
Forest Surveys (Imperial)	60,165	60,225	46,878	40,335	42,589	41,595	30,940	19,823	19,160	23,343	32,868	22,164	21,183	21,225	25,832	22,160	27,500	29,840	29,950	31,970	33,850	33,970	33,960	33,998	33,720
Forest School	...	...	...	...	...	...	...	22,568	24,239	30,831	33,129	32,961	9,646	35,191	41,347	50,400	65,530	65,980	67,950	67,320	60,920	63,770	71,550	71,233	76,220
Andamans	1,096	...	3,177	2,169	2,305	1,850	12,161	22,760	37,085	25,765	62,679	57,295	91,915	1,30,062	1,79,909	2,31,210	2,44,150	1,22,780	1,02,020	2,16,900	2,47,310	1,28,460	1,40,910	1,60,157	201,657
Total	30,01,412	20,82,915	20,78,091	20,37,221	33,35,871	35,01,710	41,67,252	41,50,563	40,78,137	41,14,518	41,31,533	50,01,811	48,78,615	47,47,951	52,09,698	53,86,020	55,83,040	56,26,470	56,41,330	62,70,050	62,78,330	63,31,170	69,79,660	67,71,671	70,05,567
Madras	5,65,024	5,95,914	5,18,527	5,19,270	6,60,419	6,55,352	7,86,733	8,96,565	9,37,972	11,53,122	11,29,212	12,20,794	11,61,237	12,46,912	12,28,254	12,30,390	13,62,770	12,86,250	14,45,610	15,38,300	15,72,850	15,94,670	16,53,530	17,15,431	17,09,551
Bombay	8,77,716	10,01,923	10,76,983	11,67,367	11,69,181	12,78,770	15,54,172	17,78,723	18,39,461	19,52,910	19,44,005	16,23,962	17,76,081	18,09,887	19,31,457	19,04,970	20,71,940	20,67,920	19,58,350	19,69,160	20,73,190	18,39,250	21,28,130	21,08,581	17,19,680
Total (British India)	44,47,782	45,83,786	47,01,207	47,24,151	56,08,471	57,25,822	65,18,157	68,25,791	68,56,570	72,20,550	72,04,750	79,19,680	78,11,513	78,61,754	84,65,319	86,21,380	90,22,720	90,10,710	90,45,290	97,73,510	99,24,350	97,63,090	1,07,61,320	1,06,95,683	1,01,96,221
Berar	1,09,968	1,07,350	1,10,508	1,28,963	1,52,983	1,55,684	1,56,778	1,52,619	1,59,212	1,71,764	1,83,765	1,70,212	1,76,549	1,63,921	1,98,366	2,29,220	2,54,250	2,51,640	2,35,510	2,31,870	2,34,650	2,28,070	2,31,380	2,35,103	2,25,687
Forest Surveys (Berar)	...	...	...	...	...	...	15,043	31,891	42,940	45,472	42,098	23,955	6,454	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	...	...	...	16,416	17,682	11,962	16,911	12,266	15,790	17,836	17,753	15,991	17,962	29,150	30,497	55,020	63,730	40,910	41,770	29,770	27,330	27,700	28,680	29,251	24,450
Grand Total	45,57,750	46,91,136	48,11,715	48,69,530	57,79,136	58,92,978	67,06,890	70,26,540	70,71,561	74,55,622	74,48,366	81,29,561	80,12,518	80,63,125	86,94,182	89,05,620	93,10,700	93,73,220	93,32,610	1,00,45,150	1,01,85,720	1,00,33,920	1,10,24,580	1,11,00,040	1,07,45,253

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

APPENDIX II—*concluded.*

SURPLUS.

Provinces.	1877-78.	1878-79	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial.	38,572	−47,240	−56,596	−46,101	−50,228	−55,536	−65,259	−69,732	−73,537	−82,118	−73,779	−82,182	−76,552	−79,015	−58,100	−1,02,030	78,160	−79,970	−77,720	−73,360	−65,170	−67,920	−80,460	−81,115	−76,055
Bengal . .	1,63,315	77,352	1,73,776	2,25,969	2,39,122	3,11,776	3,05,521	1,59,227	2,27,033	2,20,853	2,07,426	3,09,637	3,79,568	3,13,388	2,68,622	2,53,270	2,97,570	3,58,280	4,52,640	6,80,810	5,35,840	4,85,920	5,93,700	6,02,533	6,35,106
United Provinces of Agra and Oudh .	4,73,182	3,16,778	3,42,372	2,62,654	1,49,232	1,73,378	5,09,196	5,52,218	4,86,976	6,53,976	4,16,206	6,18,258	7,51,003	7,18,684	7,73,203	7,21,060	7,46,840	7,21,910	6,58,480	5,28,480	4,68,320	5,96,050	6,72,360	6,02,024	7,06,709
Punjab . .	1,63,083	−22,935	1,69,142	1,76,310	1,72,039	2,05,959	2,57,031	1,91,282	1,71,936	1,10,767	1,00,021	1,51,883	2,75,338	1,81,329	3,79,789	1,56,360	2,76,570	3,10,316	3,36,660	3,84,120	2,96,550	6,19,010	1,89,310	4,63,199	5,09,223
Burma (Lower)	7,44,851	4,19,100	5,26,700	8,04,045	10,31,580	12,73,911	12,91,451	4,58,719	8,72,907	9,22,837	11,86,203	13,77,361	18,04,872	15,91,791	15,32,993	22,20,120	21,47,710	18,95,970	20,56,810	23,14,960	26,82,090	28,93,390	28,03,760	20,18,597	21,80,017
Burma (Upper)	...	...	...	...	...	...	...	...	...	1,05,816	4,75,721	7,94,769	15,32,270	12,41,962	9,53,411	16,34,880	17,71,850	16,22,820	17,05,120	19,35,150	23,36,540	22,31,310	25,00,850	23,31,130	10,47,164
Central Provinces . .	3,61,876	4,59,101	4,84,150	3,51,627	6,75,871	5,65,166	5,58,721	5,31,331	5,91,462	4,58,117	5,40,130	5,11,703	4,59,796	4,77,907	5,55,965	2,79,159	2,02,250	22,770	44,000	−1,77,670	−1,41,390	1,23,770	−2,22,180	52,299	1,40,506
Assam . .	33,173	35 751	31,506	26,272	603	67,782	11,833	−17,235	−14,833	−270	50,420	93,977	1,22,269	42,941	63,001	1,18,760	2,20,280	1,63,060	1,28,850	1,51,150	95,990	92,820	2,10,960	2,01,519	1,33 851
Coorg . . .	61,737	17,191	16 621	31,376	40,563	73,252	12,769	36,282	23,696	25,203	54,329	56,608	20,333	69,743	26,637	1,07,520	66,500	65,910	48,410	21,370	43,890	73,970	68,198	66,691	87,009
Ajmer . .	−11,921	−12,201	−11,683	−11,299	−9,689	+4,118	−6,376	−5,869	−6,772	+9,570	+4,094	−2,402	−1,109	2,546	5,813	−114	−1,720	−2,060	−99	−9,640	870	−1,580	−5,060	−6,136	−9,662
North-West Frontier Province . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	−6,498
Forest Surveys (Imperial) * .	−60,165	−60,262	−46,546	−40,053	−42,489	−41,247	−39,104	−19,589	−18,978	−23,107	−32,828	−21,819	−20,953	−22,220	26,925	−21,640	−27,660	−29,760	−29,440	−31,570	−33,720	−33,630	−37,560	−33,661	−33,257
Forest School .	...	...	...	...	...	...	...	−22,156	−23,965	−30,416	32,362	−32,512	−28,409	−31,607	+12,559	−18,429	−63,540	−63,150	−63,540	+61,530	−58,080	−61,010	−70,240	−67,541	−72,715
Andamans .	205	5,561	−1,740	25,574	46,101	69,018	12,601	−547	−13,091	6,101	41,383	48,780	67,220	23,274	92,429	1,29,580	1,97,210	−8,250	30,100	45,770	1,85,370	91,060	1,19,000	1,37,743	62,236
Total . .	19,72,913	11,83,250	25,20,3	18,09,045	23,03,250	26,49,565	29,17,856	17,93,641	22,15,828	26,63,353	26,53,152	41,14,766	52,74,196	46,32,720	46,96,733	46,61,580	55,79,960	50,28,650	53,01,140	57,17,140	53,48,610	78,13,920	68,17,170	73,77,687	53,55 461
Madras . .	−15,311	1,10,874	77,611	2,17,610	2,03,589	2,61,090	1,66,971	2,10,411	2,00,678	93,783	2,15,705	2,94,212	2,96,890	5,38,495	3,69,962	2,46,820	5,81,310	5,07,680	6,61,900	7,69,090	5,63,610	5,15,850	6,18,760	6,24,739	8,33,876
Bombay . .	3,83,812	1,76,971	4,17,725	3,55,460	6,53,836	8,11,583	9,38,921	9,06,119	15,26,815	10,79,776	10,88,572	11,56,223	13,67,005	14,18,332	13,53,192	13,61,350	17,22,410	16,82,110	15,78,280	10,63,550	5,43,420	4,55,900	2,86,770	5,52,918	6,60,619
Total (British India) .	23,40,511	14,76,101	30,49,567	23,82,115	31,65,675	37,22,238	40,23,755	29,00,171	40,13,331	37,36,913	40,22,432	55,65,206	70,37,591	65,99,518	64,19,887	72,7 ,916	81,83,770	72,18,440	75,44,780	75,49,720	71,55,710	88,15,670	77,52,700	85,55,302	68,49,339
Berar . .	1,69,263	1,81,364	1,96,991	1,37,583	89,526	1,36,960	1,51,129	1,14,595	1,26,699	1,61,552	2,22,632	2,37,765	2,63,992	3,18,183	3,12,819	2,01,790	2,28,559	2,21,769	2,18,820	2,73,980	1,56,300	2,01,770	2,43,850	67,449	2,57,706
Forest Surveys (Berar) .	...	...	...	...	...	...	−15,013	−33,870	−32,309	−34,821	−41,032	−23,955	−6,161	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan .	...	...	...	−2,010	931	−6,923	−12,159	−7,177	+837	−3,755	−3,660	−10,326	−4,055	−13,726	−9,888	−36,590	−43,090	−21,610	−28,810	−14,310	−12,290	−12,810	−11,620	12,298	−3,768
Grand Total .	25,09,779	16,57,465	32,57,561	25,17,688	32,47,133	38,52,275	41,47,992	31,53,960	41,80,794	39,24,691	41,99,932	57,69,650	72,91,054	69,01,010	67,22,823	73,88,116	83,72,320	74,15,550	77,65,778	78,11,360	75,99,720	90,03,600	79,81,520	86,10,153	70,77,327

* Includes pay of Inspector-General of Forests, certain home charges, and undistributable and petty local items.

G. I. C. P. O.—No. 1402 R. & A.—2-10-03.—320.—J. E. P.

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1902-1903.

BY

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CHAPTER I.

EXTENSION AND ORGANIZATION OF THE FOREST AREAS.

I.—Alterations in Area.

[*Vide* Appendices I and II.]

During the year 2,131 square miles were added to and 805 square miles excluded from reserved forests, the net increase being 1,326 square miles; the total area of reserves at the close of the year was 90,750 square miles including 699 square miles of leased forests as against 89,424 in the previous year, which included 1,177 square miles of leased forests.

The most important additions occurred as usual in Burma where 1,139 square miles were added to Reserves; but of this total 156 square miles were due to more accurate computation of areas.

In Madras 480 square miles were constituted reserved forests and there was a further addition of 75 square miles on account of determination of areas by the survey parties.

In Bombay an addition of 53 square miles was made, 24 square miles being new reserves, 5 square miles due to rectification of areas, and 24 square miles were gained in Sindh by the action of the River Indus.

The most important exclusions were 513 square miles in the Bombay Presidency. They were however chiefly due to rectification of areas and to erosion by river action. Only about 45 square miles were disafforested for other reasons.

In the Central Provinces the exclusion of 149 square miles was mainly in order to provide land for cultivation.

2. At the close of the year the area under the management of the Forest Department was—

	Square miles.
Reserved forest	90,051
Protected „	9,519
Unclassed „	116,555
Leased „	699
	216,824

as against 216,879 in the previous year. The total decrease of 55 square miles is owing to a diminution of area of unclassed State forests of 1,482 square miles due probably to an extension of cultivation. The proportion of area under forest management to that of the total area of each province varies greatly, from 66·3 in Burma to 3·9 in the United Provinces, so that whilst the average for all provinces amounts to 22·4 per cent. the proportion in each is not so satisfactory as might be inferred.

II.—Forest Settlements.

[*Vide* Appendix III.]

3. Progress was continued in Forest Settlements during the year especially in Burma and Madras where 983 and 502 square miles of reserves were finally settled. The other Provinces contributed small areas to make up the total of 1,711 square miles, the largest items being 134 square miles in the Central Provinces and 70 square miles in Assam. An area of 2,363 square miles was

undergoing settlement at the close of the year, of which the major portion was in Burma and Madras, provinces which are now both noted for the thoroughness of these operations.

The cost of Forest Settlements varied from R3 per square mile in Burma to R7 per square mile in Assam, and R38 in Coorg, where however the average cost cannot be known until completion of the work. The total expenditure of the year amounted to R34,414.

III.—Demarcation.

[*Vide* Appendix IV.]

4. During the year 3,539 miles of forest boundary were demarcated at a cost of R52,121. The rate per mile was slightly higher than in the preceding year, but the outturn was less by some 1,200 miles with a corresponding reduction of expenditure. The great importance of this work must not be overlooked. In the Bengal Presidency there are about 74,000 miles of forest boundary, in Madras about 34,000 miles, and in Bombay about 45,000 miles. Some 5,169 miles of boundary still require demarcation in the Bengal Presidency, where the Punjab Circle is responsible for about $\frac{3}{4}$ths of the deficit; 1,859 miles are in Madras and 16,404 are in Bombay where the forest area consists in many cases of small and isolated blocks. At the present rate of progress demarcation will be complete in Bengal in about five years, in Madras in one year and in Bombay in about 15 years. The satisfactory progress of demarcation in Burma, where the forest area is being constantly increased by the addition of new reserves, is particularly noteworthy.

IV.—Surveys.

[*Vide* Appendices V and VI.]

5. During the year under report Detachments of the Forest Surveys were employed in (1) the Punjab, (2) North-West Frontier, (3) Central Provinces, (4) Bengal, (5) Assam, (6) Burma, and in (7) the United Provinces.

No. 20 Party continued to carry out the survey in Burma, and Nos. 9 and 19 Parties and No. 17 Party worked in Madras and Bombay, respectively. The last-named parties, in anticipation of the amalgamation of the Forest Surveys with the Survey of India Department, were placed under the control of the Superintendent, Forest Surveys. An area of 4,062 square miles was surveyed at an expenditure of R4,58,324, and the cost rates varied from R26 to R220 per square mile. The rates include charges for mapping and also, with the exception of Madras and Bombay, those for publishing. The outlay incurred on preliminary traversing and triangulation is not included save in the total expenditure.

The cost rates for the year under report compare favourably with those of 1901-02. In Madras there has been an excess of expenditure over that of 1901-02 of R8,039 due chiefly to increased charges for local labour, carriage and establishment. In Bombay the excess over the previous season amounts to R5,722 though the cost rates are slightly lower.

Good progress has been made in mapping and publishing during the year. A total of 350 sheets have been published including 11 working-plans and other special maps. Advance tracings and chocolate prints when required for working-plan purposes were supplied to Forest Officers. Details of the surveys

carried out in the different provinces will be found in the following paragraphs :—

Bengal.—Survey operations were carried out in the Kurseong, Kalimpong, and Darjeeling Divisions of the Darjeeling District at a cost of R18,268. During 1903-04 survey operations will be continued in the Singhbhum and Tista Divisions and triangulation in the Angul forests. The mapping of the Singhbhum sheets is complete and these only require the verification of the forest boundaries prior to publication. In addition to this a preliminary outline edition of a map of the Koderma forests was prepared in order to facilitate the granting of new Mica mine leases. The local surveys which were carried out by departmental agency were of small importance and consisted of the usual marking out of coupes and the survey of doubtful or incorrect boundaries in the Angul and Puri Divisions.

Assam.—The survey of the Forest Reserves in the Garo Hills and in Kamrup was commenced, the expenditure of the year amounting to R19,668. The cost rates are higher and are chiefly attributable to the difficult nature of the country and its unhealthiness; also, as local labour could not be obtained, it was necessary to import labour from Chota Nagpur. A certain amount of survey work was carried out in the Darrang and Garo Hills by Divisional Officers at a cost of R134.

United Provinces.—The survey of the newly reserved areas in the Ganges, Kumaun, Garhwal and Naini Tal Forest Divisions was carried out at a cost of R3,971. A good deal of new traversing was found necessary owing to the disappearance of the old traverse stations. This delayed the work and it was found impossible to complete a small area. This has since been completed. Three sheets were sent to the press and 13 published during the year. The new edition of the Kumaun and Garhwal series of forest maps is in hand. No work of any importance carried out by the local authorities has been reported.

Oudh Circle.—No surveys were carried out in this circle during the year under report. Good progress was made with the mapping in the Bahraich and Pilibhit Divisions. Two working-plan maps of the Trans-Sarda Forests in the Kheri Division and a District map of the Gorakhpur Division were published, the cost of which was R884. In Pilibhit the survey of a portion of the northern boundaries was undertaken locally.

School Circle.—Rupees 87 were spent in surveying the chaks excluded during the year in the Jaunsar Division.

Punjab and North-West Frontier Province (Hazara).—The area surveyed was situated on the Khagan and Siran ranges, and the sum expended amounted to R1,500. The survey of these two ranges has been completed. In addition to the above, surveys were carried out in Jubbal and Taroch, Gujrat and Rawalpindi. Twenty-two 4-inch sheets were sent to press and published during the year. In addition to the above a sum of R206 was expended on computation charges.

Central Provinces.—The survey of the Chanda forest was completed. The total expenditure for the year was R20,637. This completes the survey in the Central Provinces with the exception of the Cherla range which it is proposed to hand over to the Madras Government. The mapping and publishing of the Central Provinces sheets has made good progress, 83 sheets were sent to the press during the year and 137 published. There were no local surveys.

Berar.—With the exception of boundary and compartment surveys by local agency no other surveys were done. A sum of R143 was expended on account of the revision of 2-inch sheets of the Ellichpur and Paryapur taluks in the Ellichpur District.

Burma.—Surveys were made in the Bhamo, Ruby Mines, Mandalay, Upper and Lower Chindwin, Myittha, Yaw and Thayetmyo forest divisions at a total cost of R2,03,785. The cost rate for detail survey was higher than that of previous years, this being chiefly due to the smaller programme, and the difficult and unhealthy nature of the country. Sixty sheets were sent to the press and 67 published during the year. A considerable amount of boundary survey was done by Forest Officers.

Coorg, Andamans and Baluchistan.—No surveys are reported.

Ajmer.—An area of 32 square miles was surveyed by a sub-surveyor who was lent to the Forest Department by the Superintendent, Forest Surveys. The mapping is well advanced.

Madras.—The survey of certain forest tracts in the Ganjam, Godaveri, South Canara and Coimbatore districts was carried out at a total outlay of R99,064. The area topographically surveyed amounted to 1,411 square miles. The cost rate of all survey works compare very favourably with those of previous years.

Bombay.—The survey operations carried out in the Northern, Central and Southern Circles at a cost of R77,086 comprised the following :—

(*a*) Supplementary triangulation and detail survey on the scale of 8″=1 mile in the teak reserves of the Thana District.

(*b*) Supplementary triangulation and detail survey on the scale of 4″ and 8″=1 mile in the Nasik District.

(*c*) Detail surveys on the scale of 8″ and 16″=1 mile in Ahmednagar.

(*d*) Supplementary triangulation in Khandesh and Satara.

(*e*) Detail survey on the scale of 4″= 1 mile in the Belgaum, Dharwar, and North Kanara Districts.

Good progress was made in both the current season's mapping and in the arrears of previous seasons' work.

CHAPTER II.

MANAGEMENT OF STATE FORESTS.

I.—WORKING-PLANS.

[*Vide* Appendices VII, VIII and IX.]

6. There was, as compared with the previous year, a decrease in the areas brought under the control of sanctioned working-plans both in Bengal and Madras, and an increase in Bombay. The total areas under working-plans are now classified as follows:—

	At commencement of year.	Added during the year.	TOTAL.
Bengal	24,274	1,577	25,851
Madras	2,594	1,399	3,993
Bombay	2,577	843	3,420
TOTAL .	29,445	3,819	33,264

The progress in this branch of administration during the year is satisfactory when it is remembered that the Department is in most provinces short-handed and that the deputation of officers for the compilation of working-plans is often at the expense of some equally important work.

7. The following paragraphs show the progress made during the year in the preparation of working-plans in the various provinces:—

Bengal.—The working-plan for the Mal forests (9 square miles) was completed, the revision of the existing plan of the Darjeeling forests (39 square miles) was commenced. Progress was made in the Puri (115 square miles) and Kurseong working-plans (109 square miles). Working-plans for Singhbhum and Buxa and the revision of the existing plan for the Jalpaiguri forests were under consideration.

United Provinces of Agra and Oudh.—Working-plans for the open forests of Pilibhit (78 square miles), and revised plans for the Trans-Sarda (Kheri) forests (257 square miles) and Jaunsar Bawar (154 square miles) were completed, and the Dehra Dun plan was under compilation.

Punjab.—The revised working-plans for the Kotkhai-Kotguru forests (13 square miles) and Shahdera-*cum*-Jugian Plantation (3 square miles) were issued and revisions of the existing working-plans for the Bashahr leased forests, and the Kangra forests were taken in hand. The plan for the Jubal State forests, and for the Balsan, Theog and Mailog State forests were in hand. The preparation of a working-plan for the Pabar valley forests is held in abeyance pending the completion of the demarcation which is in progress.

Burma.—Working-plans for the Yanaungmyin, Kaing, and Palwé Reserved forests (193 square miles) and the Ngalaik reserve (126 square miles) were sanctioned, whilst steps were taken towards the preparation of working-plans for the Thaungyin, Yoma, East Yoma, Nahan and Ela reserves, and also for the South Zamayi, Kadat, Mehaw and Ziyaing reserves and the forests of the Rangoon Division. The plans for the Pyu Chaung and Pyu Kun and Taungnyo reserves are still in hand.

Central Provinces.—The working-plan for the Betul Forest Division (1,181 square miles) was sanctioned during the year and plans for the Amraoti Division and the Sambalpur Range were under preparation. Plans for the Buldana Division and the Basim and Ellichpur Divisions were under consideration. The preparation of a plan for the Nimar Division remained pending a final classification of the forest areas.

Assam.—The revision of the working-plan for the Goalpara sâl forest was under consideration during the year and the preliminary proposals were approved.

Coorg.—Some working-plans have been disorganised on account of the ravages of the spike disease; and that for the Jamhal forest was under preparation.

North-West Frontier Province.—The preparation of a working-plan for the Dunga-Galli forests was under consideration.

Ajmer-Merwara.—A slight revision of the working-plan was undertaken during the year.

Madras.—In this Presidency considerable progress was made in the preparation of working-plans. Plans were sanctioned for 1,399 square miles, and during the year 2,217 square miles were added to the areas for which working-plans are being prepared. Working-plans are now in force for an area of nearly 4,000 square miles.

Bombay.—Working-plans were completed and sanctioned for 843 square miles, bringing up the total area for which plans are in force to 3,420 square miles.

II.—Communications and Buildings.

[*Vide* Appendix X.]

(*a*) Roads and Bridges.

8. The total expenditure in roads and bridges amounted to R1,95,591 showing a decrease of about R13,000 during the year.

Of the R1,03,990 expended on the new work, the United Provinces and Madras head the list each with an expenditure of over R19,000 which was closely approximated in Bengal. In the Central Provinces an outlay of over R14,000 during the year as compared with that of R829 in 1901-02 proves the intention of the Administration to afford facilities for the removal of forest produce. The small expenditure in the Punjab, in Assam, in Bombay and in Burma appears to be regrettable. In the latter Province two Conservators remark on the absence of roads and on the result this must have on forest exploitation, while a third points out that the paucity of supervision and difficulty of procuring labour forms a serious drawback to the prompt opening out of needful communications. There is probably no form of forest expenditure which has so much direct influence on forest Revenues as the construction and upkeep of export roads and inspection paths and a liberal outlay in this direction is necessary if satisfactory and speedy development of the valuable State forests is to be attained.

(*b*) Buildings.

9. The expenditure on buildings amounting to R3,26,116 shows an increase of R64,277 to which almost all the more important Provinces contribute their share. Assam alone shows a saving both on new works and repairs on the comparatively insignificant sum of R10,000 expended during 1901-02.

Under new works Burma still heads the list with R50,000 followed by the United Provinces with R39,000 and Madras with R32,000; Bengal, Bombay and the Central Provinces coming next with R24,000, R23,000 and R20,000, respectively. The large increase in activity in Bombay is specially noticeable, the greater portion of the more liberal expenditure being devoted to the proper housing of subordinates. This is also the case in the Central Provinces and other Provinces; while the necessities of the controlling staff were also not overlooked, many rest-houses being completed or partially constructed in Bengal, Burma and Madras. The record of the year under this head is most satisfactory as showing that the importance of providing shelter for the forest staff has received adequate attention in most Provinces.

An expenditure of R48,851 occurred under the heading of Miscellaneous Works which includes various useful operations, such as the deepening and construction of tanks for watering cattle, the construction and repairs of wells and cleaning of compounds and camping grounds.

III.—Protection of Forests.

(*a*) General Protection.

[*Vide* Appendices XI and XII.]

10. The number of forest cases decided in magisterial courts during the year was 11,022 as compared with 11,601 during the preceding year. The average percentage of convictions was for both years 86·9. Court cases showed an increase in Burma, in the Central Provinces, in Assam, and Baluchistan, and a decrease in Bengal, the United Provinces, the Punjab and Ajmer.

11. The number of compounded cases showed during the year a slight increase from 34,497 to 36,890. Increases occurred in the Central Provinces and in Bengal, while there was a decrease in Coorg, in the United Provinces and in Baluchistan.

12. With regard to cases in which the offenders remained undetected there was a slight decrease during the year. The total number was 6,470, and of these 3,328 were referable to injuries to the forests from fire, of which again 2,128 occurred in Bombay.

13. The following table shows the forest offences of 1902-03, compared with the average number of offences of the three preceding years, for all India:—

	Average. 1899-1900—1901-02.	In 1902-03.
Injury to fire-protected forests by fire . .	3,846	4,127
Unauthorized felling or appropriation of wood .	29,264	29,270
Grazing without permission	16,880	18,939
Other offences	3,413	3,608

Various reasons are assigned for local variations in the number of forest offences. The vigilance of the forest staff in prevention or detection no doubt accounts in some measure for a decrease or increase in the number of breaches of forest law, just as want of energy may reverse these results. The action of the magistracy in inflicting deterrent or inadequate punishments is also sometimes correctly cited as a reason for the local decrease or increase of crime, and investigation is further complicated by the varying classification of offences and their treatment from year to year in one and the same province. For instance, in Bengal in the year under review court case declined by 32 per cent., compounded cases increasing in nearly the same proportion; while in the Central Provinces compounded cases increased by about 38 per cent. which is believed to be chiefly due to excess grazing of nearly 2,000 cattle in one district whose numerous owners each appeared in the register in a separate case. Putting aside other causes as affecting results only to a minor extent, it may safely be asserted that any large increase in forest offences denotes either that the restrictions placed upon the people are intolerable or that it is worth while to evade them. Both the intolerance and evasion may indeed be only temporary, due to a falling off in local prosperity for which provision should have been made in increased liberality in the utilization of State forests; but when in normal circumstances, on which forest rules and settlements are necessarily based, forest offences increase in number, further enquiry into local conditions becomes desirable in order to decide between the requirements of the tenantry and those of the forest, in justice to both.

14. Considering the increase in forest area which has occurred during the past three years, the table given above does not indicate that any marked increase

has occurred in forest crime during that period. The statistics referring to grazing without permission are most noticeable, but the 2,100 added cases occur in the Central Provinces, and the explanation of the increase has already been given. The decrease in the number of undetected offenders is satisfactory, though their total is still too high. Here the working of the subordinate staff may to a greater extent be judged with regard to its efficiency and honesty, for when these cases are numerous there must always be grounds for suspicion either that inspection has been perfunctorily performed, or that the forest subordinate has himself tried the offender.

(*b*) Protection from Fire.

[*Vide* Statement below and Appendix XIII.]

15. The area under protection from fire increased during the year by 1,763 square miles, the principal additions being made in Burma and the Central Provinces. It now reaches a total of 36,651 square miles. Of this area however a certain proportion is left without the supervision of a special staff with the inevitable result that fires are unusually frequent. In future it will be unnecessary to take such areas into account when considering the results of organized fire conservancy, for if a forest is worth protecting the expenditure involved in supplementing mechanical aids to success by the entertainment of a staff of watchers is also justified, and if it is not incurred those forests which are not specially protected may more conveniently be classified with others which, by their nature, are self-protected.

16. Three thousand nine hundred and seven square miles or 10·7 per cent. of the protected area was overrun by fire. The percentage of failures in the preceding year was 8·4. The following table shows by Provinces the results of protection during the past five and the present year, and from it may be judged for how long on an average the forests of any Province may be expected to profit by continuous protection. It will be remembered that in certain circumstances the beneficial effects of the exclusion of forest fires are not apparent for many years:—

Province.	Area in square miles.		Proportion of forests under fire protection to total area of reserves (1902-03).	Percentage of failure to area protected.	
	Attempted (1902-03).	Protected (1902-03).		Average of past five years to 1902.	1902-03.
Bengal	2,210	2,138	37	8·1	8·3
United Provinces	3,904	3,085	79	2·4	3·7
Punjab	882	883	98	2·0	2·1
Burma	7,413	5,692	38	12·2	23·2
Central Provinces including Berar	6,934	6,746	39	3·8	2·7
Assam	1,195	1,176	32	3·9	1·6
Coorg	205	200	36	8·7	2·4
North-West Frontier Province	74	64	32	5·9	13·5
Ajmer	142	140	99	·7	1·4
Total Bengal	22,259	20,104	38	5·9	9·7
Madras	5,545	5,031	31	4·3	9·3
Bombay	8,847	7,609	66	12·2	13·9
Grand Total, 1902-03	36,651	32,744	40	7·5	10·7
,, ,, 1901-02	34,888	31,951	38	...	...

17. The causes of failure in Burma, whence the highest percentage is recorded, is attributed to many reasons of which some are in the power of the staff to remedy. Such are the inefficiencies of fire traces, carelessness of subordinates and lack of supervision. But there are other serious difficulties to be overcome in this Province such as the remoteness of some forests from assistance in extinguishing fires, the scarcity of labour, the enormous extent of divisional charges and the aversion of the people from distasteful labour. Bombay which shows the next highest percentage of failures decreases from nearly 19 per cent. in the preceding year to 14 per cent. in the year under review, but is still above the average of the past five years; in the Sindh Circle, where apparently no special protection is afforded, fires increased in number from 29 to 117.

18. The causes of forest fires are tabulated in Appendix XIII, and from this statement some idea can be formed of the efficiency of fire conservancy operations and of the local opposition which has to be met.

The conclusion may be drawn that in this branch of protection to command success not only is it necessary to make careful arrangements and to thoroughly supervise them, but also to create and maintain cordial relations with the people without whose assistance it is almost impossible to make any continued progress.

(c) Protection from Cattle.

[*Vide* Appendices XIV and XV.]

19. Of the total area of forests under departmental administration, 37,452 square miles were closed to grazing, 36,362 square miles to browsing only, and 143,010 square miles were open to both grazing and browsing. Thus only about 17 per cent. of the State forests are closed entirely to cattle, and under recent orders of the Government of India this area is in time of scarcity also to be made available, first for the supply of cut fodder, and subsequently for grazing if this is necessary. In face of these statistics it cannot be maintained that the interests of the agricultural or cattle-breeding communities are subordinated to those of forest conservancy in India. Individual cases of hardship may occasionally exist which are rectified by the local authorities, but taken as a whole the State forests provide a large proportion of the grazing grounds of the empire and also constitute a reserve area which may in time of need be of the utmost importance.

20. The percentage of the areas open and closed to grazing has remained practically the same during the past 4 years, but as far as it is possible to judge from a consideration of the number of cases of unauthorized grazing brought into court, of similar cases compounded and of the number of cattle impounded there has been, as compared with the average of the past 3 years, probably some diminution in the frequency of cattle trespass. The number of cattle impounded is still high, being about 370,000 in Madras, 200,000 in Bombay, against 46,000 in Bengal. There can be no doubt that it is essential that cattle should be kept out of areas that are under natural or artificial regeneration, and if such areas are numerous and located in a thickly populated country or adjacent to the grazing grounds of cattle-breeding communities, great difficulties will occur in their adequate protection against intrusion. Altogether, however, there are not wanting signs that the necessary restrictions in favour of the forests are beginning to be understood and acquiesced in by the people, though here and there local conditions may require that re-adjustments of existing arrangements should be made either on the one side or the other.

(*d*) PROTECTION AGAINST INJURY FROM NATURAL CAUSES.

21. The cutting of climbers was carried out over considerable areas in Bengal and to a less extent in Assam; in both these provinces these operations appear to be very urgently needed as the vitality of sâl is in places seriously impeded by the luxuriant growth of climbers. In the United Provinces, where these pests have always been held in check, work in a regular system was continued; in Burma climber cutting operations were combined with the felling of teak trees attacked by epiphytic growth. In the Central Provinces climber cutting is generally carried out by the subordinate establishment, and the same is the case in Bombay, there is thus no complete record available of the area treated or of the total expenditure incurred.

22. The most important amongst other injuries to which the forests are less liable are frosts in Upper India, and drought in Central India. Investigation into the life history of insects harmful to forest growth were continued and much valuable information collected more especially as to teak defoliators in Burma and the Central Provinces. Spike disease continued its ravages in the sandal forests of Mysore and Coorg. The matter is still under careful investigation but up to the present the destruction of all infected plants is the only practical means discovered of checking the progress of the disease. Considerable damage was done by cyclonic storms especially in Bombay. The effects of such storms or of continued drought is often sufficiently serious to hold in abeyance the felling prescriptions of regular working-plans on account of the large quantity of timber that is unexpectedly thrown into the market.

IV.—SYLVICULTURE.

(*a*) NATURAL REPRODUCTION.

23. Much local information regarding the natural reproduction of the more valuable species during the year is afforded in the Circle Reports. In some cases seedlings and coppice were injured or even destroyed by cattle and fires; in others seed failed to germinate on account of drought. The seedfall was in some localities ample, but germination was not satisfactory being hindered or prevented by a dense undergrowth or heavy shade; elsewhere again the seedfall was insufficient or wanting. But operations for the purpose of aiding the natural reproduction of the principal trees do not appear to have been frequent, although they must in many cases be almost a necessity in these areas where the effects of fire conservancy result in favouring the inferior growth. From some Circles are recorded interesting details of the progress of investigations or of experiments made in the endeavour to ascertain the reason of the failure of teak regeneration in protected forests. So far as these have proceeded it appears evident that the absence of sufficient light or the presence of excessive undergrowth are the retarding causes; but the problem of how to provide, over large areas of natural forest, for the former without inducing the latter is still unsolved.

(*b*) ARTIFICIAL REPRODUCTION.

[*Vide* Appendix XVI.]

24. The area added to *regular plantations* during the year amounted to 1,497 acres of which almost all was in Madras. Various small areas were added to or excluded from existing plantations in the Bengal Presidency. The total area of regular plantations in the three Presidencies now amounts to

64,453 acres excluding the rubber plantation at Mergui which is still considered to be in the experimental stage. The *taungya plantations* of teak, catechu, and padouk in Burma and Coorg were increased by 3,136 acres; the system still proves effective in extending with certainty the area of forest under these valuable species which now amounts to 63,833 acres. The cost of extension of all plantations and their up-keep during the year amounted to R1,15,738.

25. R52,634 were expended during the year on *cultural operations* comprising sowings and plantings in natural forests with a view either of replacing natural reproduction where this was wanting, or of introducing new growth. In all cases it is not possible to clearly distinguish between cultural and plantation work. The largest sum was spent in Bombay where many areas were specially prepared for seed and also many thousand seedlings planted out. In Burma work was chiefly confined to the dibbling or broadcast sowing of teak seed. In Bengal the planting up of exploited coupes was found to be necessary on account of the scarcity of natural reproduction in the hill forests. Good work was also done in the Punjab and the United Provinces by the sowing and planting of deodar; while in Madras palmyra was sown along boundary lines, casuarina was planted out and babul seed sown broadcast in various places. The following table shows by provinces the sums expended on this very important work :—

	R
Bengal	7,568
United Provinces of Agra and Oudh	2,697
Punjab	6,920
Burma	11,509
Central Provinces including Berar	1,723
Assam	...
Coorg	756
North-West Frontier Province	299
Ajmer	...
Baluchistan	13
Andamans	761
Madras	6,541
Bombay	13,892
TOTAL	52,684

(*c*) OPERATIONS FOR THE IMPROVEMENT OF GROWING STOCK.

26. These operations are entirely separate from exploitation or plantation work; they are carried out in natural forest and are not revenue producing, but they are highly important as influencing the yield of the future and it is satisfactory to observe that in various Provinces much good work has been done. In the hill forests of the United Provinces and Punjab large areas under young deodar were treated by cleanings and weedings with most favourable results. It is probable however that the subordinate establishment is not competent to carry out without paid assistance all that should be done in this direction. In the plains forests of the same Provinces Sâl and Bamboo areas were also operated on with cleanings, thinnings and girdlings. In Burma improvement fellings, comprising apparently all the above-mentioned works, extended over large areas in many divisions. Their effects on the existing growth will form an interesting record in the future. In the Berar Circle of the Central

Provinces improved coppice regrowth of teak was arranged for by cutting back the existing inferior growth of saplings, and congested clumps of bamboo were thinned out. Other Provinces report minor operations such as the eradication of prickly pear and cleanings in coppice areas in Bombay, and some cutting back of badly grown coppice in Madras. Statistics regarding area and cost are not always available but it is anticipated that, in the future, cultural operations will receive more attention in the forest and more detailed consideration in the annual reports.

(*d*) Experiments.

27. Much attention has been devoted to the experimental cultivation of rubber producing plants. In the Tennaserim Circle of Lower Burma 770 acres were added to the area under *Hevea* which now amounts to 1,679 acres. The cost of the operations of the year were ₹16,962. Experiments on a smaller scale were carried out in the other Circles in Burma and in Bengal but these are not of much significance save as showing the suitability or otherwise of the locality to the growth of *Ficus elastica* and other species.

The manufacture of turpentine in the Punjab and the United Provinces was continued. This industry has now passed the experimental stage but it appears doubtful if the area available for tapping operations is sufficiently large to attract private enterprise which is desirable in order to relieve departmental officers of this special work. The efforts made in various Provinces towards the introduction of exotics or the special cultivation of indigenous plants such as *Cæsalpinia digyna* do not appear at present to be of such importance as to warrant any large outlay on their continuance.

28. Investigations were in progress regarding *Musa* fibre, cassava cultivation, the manufacture of wood and bamboo pulp for paper making and the value of various latices of rubber producing plants. Much valuable information was collected which will, it is hoped, lead to the utilization of many forest products whose value has up to the present been overlooked or neglected; in particular the vast resources of the Indian forests in supplying material for wood pulp have been recognized, and special enquiries are being made as to the possibility of remunerative manufacture of pulp for export.

CHAPTER III.

I.—Working and Outturn.

[*Vide* Appendices XVII and XVIII.]

29. The following statement shows the outturn of timber, fuel, bamboos and minor forest produce from all forests, reserved, protected and unclassed, under the control of the Forest Department :—

Presidency.		Timber and Fuel.	Bamboos.	Minor produce.
		C. ft.	No.	₹
Bengal	1902-03	181,345,643	282,851,296	27,27,405
	1901-02	170,735,735	142,919,425	26,64,142
Madras	1902-03	21,958,556	35,844,728	11,44,255
	1901-02	18,730,441	39,217,618	11,90,567
Bombay	1902-03	42,596,413	4,479,201	7,39,691
	1901-02	42,134,901	4,662,295	6,83,424
Grand Total	1902-03	245,900,612	323,175,225	46,11,351
	1901-02	231,601,077	186,799,338	45,38,133

30. The increase of about 14 million cubic feet in the outturn of timber and fuel is explained as follows :—

In *Bengal* there was a decrease of about 2 million cubic feet referable for the most part to the enforcement of protective regulations in the Sunderbans.

In the *United Provinces* an increase of 2½ million cubic feet is accounted for by a larger yield in the Oudh and School Circles. In the latter larger exports from the leased forests were arranged for.

The increase of 3¼ million cubic feet in *Madras* and about ⅓rd of a million cubic feet in the *Punjab* are principally due to larger disposals of fuel.

In the *Central Provinces*, which show an increase of over 6 million cubic feet, there were larger fuel exploitations in all three Circles; and in some departmental sleeper works also added to the outturn as well as timber works for the benefit of other public departments.

In *Assam* about 2½ million cubic feet in excess of the demand of last year were disposed of either to purchasers or to grantees.

The *North-West Frontier Province* sold to purchasers ¼ million cubic feet more timber than in 1901-02, chiefly in standing trees. The *Andamans* show a considerable increase in the outturn of timber and a corresponding decrease in that of fuel. The increase is attributable to the growing demand for ornamental woods, the decrease to the substitution of coal for wood in the industries of the island. The other provinces show no marked variations in outturn.

31. There was a demand for 136 million bamboos in excess of that of the previous year, and of this amount 126 million were provided for in Burma.

32. The value of minor forest produce removed during the year was almost the same in each Presidency as that of the preceding 12 months.

33. The average outturn of timber and fuel per square mile was in *Bengal* 992 cubic feet, in *Madras* 1,129 cubic feet and in *Bombay* 2,868 cubic feet; but these figures afford but little foundation for an estimate of the value of the forest or of the result of its working. The Bengal Presidency, for instance, comprises in Burma immense areas of valuable forest land for whose produce there is at this time, on account of the

small population, comparatively little demand, and thus the average annual outturn of timber and fuel from the reserves in that province amounted only to 437 cubic feet per square mile against 3,556 cubic feet from the reserves in the United Provinces. Of more value in estimating forest wealth and forest management are the statistics of net revenue per square mile when considered in connection with the proportion of gross revenue expended in order to obtain these results, and with the outlay in works of improvement and protection.

34. With regard to the agency of removal it is gratifying to observe that departmental operations are being gradually restricted and that direct sales to purchasers are increasing. During the year under review only 8 out of some 50 millions of cubic feet of timber were removed by Government Agency from State forests, while the corresponding figures for fuel are 19 and 118 million cubic feet. As regards minor forest produce only a very small proportion is collected departmentally.

35. The demands of grantees and right-holders absorbed nearly 4½ million cubic feet of timber and 72½ million cubic feet of fuel or about one-third of the total outturn from the forests of the State; while out of a total estimated value of minor forest produce of 46 lakhs of rupees, 14½ lakhs worth was bestowed free of cost on private individuals resident in the vicinity of the forests.

CHAPTER IV.

FINANCIAL RESULTS.

Vide Appendices XIX to XXIII.]

36. The following statement gives details of the Revenue and Expenditure of the last 30 years :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Proportion of Expenditure to Gross Revenue.
	₹	₹	Per cent.
1873-74 to 1877-78	67,23,191	44,76,303	66
1878-79 to 1882-83	79,15,956	52,09,538	66
1883-84 to 1887-88	1,10,59,434	71,42,382	64
1888-89 to 1892-93	1,51,66,115	82,61,176	55
1893-94 to 1897-98	1,74,50,655	96,57,496	55
1898-1899	1,90,38,520	1,00,33,920	53
1899-1900	1,90,09,610	1,10,24,680	58
1900-1901	1,97,70,493	1,11,60,040	56
1901-1902	1,78,23,715	1,07,46,388	60
1902-1903	1,94,71,540	1,12,49,331	58

37. The gross revenue of the year under review was ₹16,47,825 in excess of that of the previous year and ₹7,83,982 in excess of the average of the past five years. The surplus of the year amounted to ₹82,22,209 being ₹11,44,882 in excess of that of 1901-02 and ₹1,66,396 in excess of the average of the past five years.

The improved financial results are referable to forest operations in areas outside the Madras and Bombay Presidencies, chiefly in Burma and the United Provinces.

In *Bengal* there was some falling-off of revenue owing to the restrictions placed in illicit or ill-advised fellings of *sundri* timber.

In the *United Provinces* all three circles contributed to a rise of ₹3,10,000 in the revenue. There were large sales in the Jaunsar Division of blue pine and of dead and refuse timber.

The revenue in the *Punjab* increased by ₹1,39,000 on account of larger receipts from fuel, drift timber and other products.

In *Burma* ₹3,65,000 was the increase in revenue due to a rise in prices and larger sales from stock.

The *Central Provinces* shows ₹1,05,000 in excess of last year. Sales of timber to public Departments were increased and more favourable conditions in the Province conduced to larger sales of other forest produce.

In *Assam* an increase of ₹67,000 was due to advances made by railways for sleeper deliveries, and to sales of rubber from stock.

Other Provinces show less important variations in gross revenue. In *Madras*, where the chief sources of revenue appear to have been fuel and grazing, an increased revenue of some ₹70,000 was more than counterbalanced by an increased expenditure of ₹1,25,000 in extraction of produce in live and dead stock and in compensation for land and rights.

In *Bombay* gross receipts declined still further by R50,000 due to various causes, such as abnormal outstandings of revenue in the Southern Circle and an alteration in the management of some leased forests.

38. The value of produce given free to those resident in the neighbourhood of the forests was R21,60,904 in Bengal and Burma, R64,053 in Madras, and R10,97,000 in Bombay. As is customary, no credit was taken for this sum of R33,21,957, which amounts to about one-sixth of the gross revenue collected in the State forests. Especially with regard to grazing, is the liberality of the Government evident; as the value of free grazing equals the amount of revenue collected under this head. Appendix No. XXI attempts to show some distribution of financial results from which the proportions of gross revenue expended in establishments and working may be observed.

39. The following statement exhibits the financial results of the working of the forests, to Government and the Country, after deducting expenditure not yielding an immediate return but which goes to increase the capital value of the forests and leads to an increase of revenue hereafter:—

			R
Gross Revenue			1,94,71,540
Value of produce granted free or at reduced rates			33,21,957
Total value of yield			2,27,93,497
	R		
Gross Expenditure	1,12,49,331		
Deduct Expenditure not yielding an immediate return:—			
	R		
(*a*) Roads and buildings	5,51,752		
(*b*) Cultural operations	3,71,676		
(*c*) Working-plans	72,421		
(*d*) Settlements	1,30,430		
(*e*) Surveys	3,65,451		
(*f*) Demarcation	1,09,251		
Total		16,00,981	
Balance of direct Revenue producing Expenditure			96,48,350
Surplus of Revenue over Expenditure directly chargeable to Revenue			1,31,45,147

CHAPTER V.

GENERAL.

I.—Establishment.

40. During the year under review there was no change in the sanctioned permanent establishment of the Department. Three officers of the Imperial Service died, and two retired. Four deaths occurred amongst officers of the Provincial Service. The Inspector-General of Forests and nine Conservators were on leave during the whole or part of the year.

41. It is a matter of great interest to note that the governments of Native States are yearly more fully recognizing the importance of bringing their forests under regular and systematic management both for the benefit of the States and the people. As far as possible their demands for trained officers of both Imperial and Provincial Services have been met. The following statement shows the Native States where forests are at present being administered by officers lent by the Government of India, and also those officers whose services have been lent for service in British Colonies and Siam. It is regrettable that, owing to an insufficiency of officers in the Indian Forest Service, several applications from various Governments for the services of Imperial Officers have had to be refused, but the Secretary of State has during the year sanctioned a further increase of four posts to the cadre of Foreign Service Officers, and it is hoped that, in the future, whilst safe-guarding the effective administration of the Indian forests, it will still be possible to render some assistance outside their limits. At the present time Imperial Forest Officers either retired or on active service are administering the State forests in Ceylon, Egypt, South Africa, the Malay States, Southern Nigeria and Siam, but the increase of late years in the areas under the control of the Department, the more specialized treatment of these areas and the greater attention that it is necessary to pay to the development of their economic products, imposes an increasing burden on the staff in India and the intensity of the local demand for trained foresters will, under existing conditions, continue to restrict the amount of outside help that can be legitimately afforded.

Officers on Foreign Service.

(*i*) *In India.*

Imperial Service.	*Provincial Service.*
1. Mr. McDonnell (Central Provinces), Kashmir.	1. Mr. Mee (Bengal), Orissa States.
2. Mr. Pigot (Assam), Ceylon.	2. Mr. Keshavanand (United Provinces), Tehri.
	3. Mr. Daulat Ram (Punjab), Kashmir.
	4. Mr. Sundar Das (Punjab), Kotah.
	5. Mr. Jaikishen (Punjab), Jubal.
	6. Mr. Hunt (Central Provinces), Bastar.
	7. Mr. Muttannah (Madras), Mysore.
	8. Mr. Hardie (Madras), Jeypore estate.
	9. Mr. Chetti (Madras), Cochin.
	10. Mr. Dalal (Bombay), Rajpipli State.

(*ii*) *In the Colonies.*

1. Mr. Burn-Murdoch (Burma), Federated Malay States.	1. Mr. Rogers (Burma), Trinidad.
2. Mr. Thompson (Burma), Southern Nigeria.	2. Mr. Craddock (Burma), Federated Malay States.
3. Mr. Gleadow (Bombay), Mauritius.	

(iii) Under other Governments.

Imperial Service.		*Provincial Service.*
1. Mr. Tottenham (Burma),	Siam.	1. Mr. R. C. Thompson (Central Provinces), Siam.
2. „ Witt (Central Provinces),	„	

II.—Exports of Forest Produce.

[*Vide* Appendix XXIV.]

42. The exports of caoutchouc have very rapidly declined and are now insignificant. This is probably due to the exhaustion of the natural forests from unregulated working, while the products of artificial plantations are at present not large enough to influence the market. There was a large increase in the lac export over that of last year, but the average of the past five years was only slightly exceeded. The variation in amount of this product from year to year may perhaps be attributed to local climatic causes. The value of exports of sandal and other ornamental woods increased by R1,45,000 and should further rise, temporarily in the case of sandal on account of the ravages of the spike disease, and permanently in the case of padouk and other furniture woods which, in some localities, such as the Andamans, are being more thoroughly exploited.

Cutch and Gambier also show an increased value of about R1,34,000. The recently introduced system of control of the cutch industry in Burma should be conducive to a further expansion of this trade. The export of myrabolams and cardamoms was also considerably larger than in 1901-02 and trade in these articles of forest produce appears capable of steady advancement. The exports of teak declined by over 3,000 tons representing a value of some R2,86,000; they are now some 23 per cent. less than the average of the past five years. Prices continue to rise but by no means in the proportion that might be expected from the decreased deliveries. It is probably the case that the teak crop in the more accessible areas having been reaped with great advantage to contractors, these are not at once prepared to continue deliveries at former prices, while purchasers resent the enhancement of rates now asked and are turning their attention to other timbers which may suitably take the place of teak in those industries where it has hitherto been considered as indispensable. There is probably still a full demand for the whole output of teak from India and Siam, provided that a reasonable adjustment of price can be made between holders and purchasers.

The total value of exports rose from about 23 million rupees in 1901-02 to 32 millions of rupees in the year under review.

III.—Recruitment and Technical Education.

43. Out of seven candidates who completed the forestry course at Cooper's Hill College, six arrived in India towards the close of 1902 and were posted, two to the Central Provinces, and the others to Bombay, the United Provinces, Burma and Assam. On the recommendation of the Government of India the annual number of recruits for the Imperial Forest Service has been raised to eight and this number were selected at the Entrance Examination held in June 1903.

44. The Directorship of the Forest School at Dehra Dun was held by Mr. Oliver up to the beginning of April 1903 when that officer, proceeding on furlough, handed over charge to Mr. Hobart-Hampden. Mr. Jackson filled the post of Deputy Director throughout the year. More than one-half of the

candidates who appeared at the Entrance Examination of 1902 failed to qualify and less than one-half of those who succeeded in satisfying the Examiners joined the school course. It appears from these statistics as if more discrimination in permitting applicants to appear at the Entrance Examination would be desirable. The results of the final examinations were satisfactory. Of 42 students who presented themselves for this test 31 obtained the Higher and 7 the Lower Certificates.

45. The Directorship of the Burma Forest School at Tharrawaddy was held by Mr. Muriel for 1½ months and by Mr. Troup for the remainder of the year. Twelve students presented themselves at the final examinations of whom four obtained the Higher and seven the Lower Certificates. The annual admissions to the School have been raised from 12 to 20 and the teaching staff strengthened by the addition of a second Instructor. During the year the Syllabus of instruction was revised and manuals of forestry and other subjects were issued in both English and Burmese; at the same time progress was made in the collection of specimens for the School Museum.

IV.—Forest Administration in Native States.

43. It is regretted that it is only possible to give a very superficial review of the progress made in forestry in Native States during the year, the reports of administration in some important States not being available.

47. *Jammu and Kashmir.*—The State forests continued to be administered by the Conservator, Mr. J. C. McDonnell. Their area increased by about 90 square miles and now amounts to 2,474 square miles. Of this area, 1,727 square miles are completely demarcated and good progress was made in boundary surveys during the year. Breaches of forest law are not numerous, they consist chiefly in unauthorized fellings.

48. The forests are apparently now not liable to danger from fire, as although only R14-5-0 expenditure is recorded under this head of protection, only 104 fires occurred burning 3,230 acres out of the total area under departmental control. The occurrence of large fires in the past which were most destructive to forest growth is indisputable and the forest staff is to be congratulated on the exercise of moral force which has evidently been sufficient to put an end to these disasters. The resulting benefit to the forests in the progress of natural reproduction of the most valuable species must be enormous. Not much has been effected in other ways towards the improvement of the forests. There are still no working-plans, the sum expended on communications was insignificant and the forest staff does not appear to be properly housed. The artificial reproduction of deodar, where attempted in small areas, was not successful.

49. On the other hand, much attention was devoted to the outturn of the forests and to its disposal. The total estimated outturn amounted to about 36 million cubic feet in timber and fuel, but of this less than 4 million was removed departmentally and only 1,600,000 cubic feet by purchasers, the remainder fell to the share of free-grantees and other privileged persons. Sleeper and drift timber works were remunerative and the price of deodar timber appears to be rising owing to better demand and also to better supervision of sales during the year.

50. The gross revenue of the year amounted to R8,55,816 and the net revenue to R5,37,903, showing that another lakh of rupees might well have been

expended in increased establishment and in the consequent improvement of the forest which it might then have been possible to inaugurate and supervise.

51. *Mysore.*—The post of Conservator was held throughout the year by Mr. Muttannah, Rai Bahadur, Extra-Deputy Conservator of Forests on the Madras Forest List. The area of State forests remains at about 1,950 square miles. Attention was specially directed to the important matters of settlement, demarcation and survey, and it is anticipated that, in the future, good progress will be made, though up to the present this has not been satisfactory. The area under working-plans, now amounting to 135 square miles, was not increased though in some cases provisional working-plans have been drawn up as a temporary measure. This no doubt is a step in the right direction and is probably all that is required in many localities until the forest staff shows more zeal, or until a constant demand for the yield of the forest is established. A small sum of R6,187 was spent in communications and considerable activity was shown in the construction of buildings which cost R17,743.

52. The number of forest offences appears to be steadily in the increase; it stood at 839 in 1902-03. The Conservator considers that this may be due to the promulgation of rules for the management of district forests. There was a considerable increase to the area under special protection from fire, which now amounts to 1,700 square miles, of which 1,579 square miles was successfully treated at a cost of R11,509. Attention was also paid to the protection of the forest from grazing and from injuries due to climbers.

53. The revenue of the year amounted to R14,77,656; of this R10,03,351 was due to sales of sandalwood. The surplus amounted to R9,97,595, being an increase of about R52,000 over that of the previous year. This may be referable to the higher prices obtained at sandal auctions, and it would be of interest if the sandal and forest income and expenditure could be separately classified so as to permit of independent review of the two subjects.

54. The question of the cause of the spike disease and of the best methods of prevention is still unsettled. Meanwhile the eradication of diseased plants has been found to some extent effective in staying the progress of this disease.

55. *Jodhpur.*—The area of State forests remained unchanged at 347 square miles. Good progress was made in permanent demarcation and a commencement in the survey of the forests on the 4″= 1 mile scale. There appear to be still a large number of petty forest offences, mostly compounded, though there is a considerable reduction in those of last year. The protection of the forest against fire was as usual satisfactory, less than 1 square mile was burnt over and the cost was very low, amounting to only R0-11-3 per square mile. There was, however, a large increase in grazing and the number of cattle recorded, about 16,000, is nearly double that of the past year. For this no reason is assigned though it would seem that as natural regeneration is already in deficit on account of drought, it might have been possible to permit the cutting of fodder in the more valuable forests without allowing the ingress of cattle which must have caused serious damage.

56. The financial results of the year are satisfactory, showing a gross revenue of R19,912 and a surplus of R4,770. This latter sum might perhaps be legitimately augmented by R7,367 spent on arboriculture and R3,306 on horticulture

and would then present a more correct idea of the value of forest operations proper.

57. *Hyderabad.*—The report of Forest Administration in His Highness the Nizam's Dominions affords much interesting reading. The reserved forests extend over an area of about 5,200 square miles, of which however more than one-third consists of cultural land which will ultimately be demarcated. Outside the reserves are immense areas of open forests often valuable, but not under the management of the Forest Department; and rapidly deteriorating by ill usage. From this area 4,400 square miles have now been separated as *protected forests* under departmental control and doubtless much of this will after careful inspection be reserved to the permanent benefit of the country. Other progress made during the year consisted of a large increase to the establishment; the inauguration of a forest class for the instruction of subordinates, and the creation of a forest survey party. Government also acknowledges the great necessity for the extension of forest communications and for the construction of buildings, and desires the Conservator to submit projects with these objects.

58. Apparently however much yet remains to be done to perfect the improvement and protection of the forests. Protection from fire is only afforded to a very small proportion of the reserves; the progress of the compilation of working-plans is slow; the forest law perhaps requires amendment and adequate protection from man and cattle is not always provided for. But the requirements of the State forests are known and are being worked up to gradually with due regard to the interests of the inhabitants.

59. The financial results are satisfactory. Ten years ago the income amounted to R1,28,000 and the surplus to R32,000. It has steadily increased to R3,70,000 income and R2,22,000 surplus in the year under review. The chief source of revenue is timber removed by purchasers, though fuel and charcoal, grazing and minor forest produce are also important items. The expenditure under communications and buildings, under organization, improvement and extension of forests reached the insignificant total of R2,182 and as apparently forest revenue amounting to over R86,000 was collected through the Agency of the Revenue Department, in addition to that abovementioned, it is evident that a much larger expenditure might be legitimately incurred with the certainty of improving the forest estate and increasing its revenue in the future.

APPENDIX I.

[*Vide* paragraph 1.]

Area of reserved and leased forests.

Province.	Area, in square miles.				Remarks.
	At commencement of year.	Added in 1902-03.	Excluded in 1902-03.	At close of 1902-03.	
Bengal . . .	5,964	6	9	5,961	
United Provinces . .	(*a*)4,053	29	11	(*a*)4,071	(*a*) Includes 153 square miles of *leased* forests.
Punjab . . .	(*b*)2,314	14	(*c*)34	(*d*)2,294	(*b*) Includes 345 square miles of *leased* forests. (*c*) Includes 16 square miles of *leased* forests. (*d*) Includes 329 square miles of *leased* forests and does not take into account 113 square miles of Military reserves and 4 square miles of Civil reserves.
Burma	18,606	1,139	37	(*e*)19,708	(*e*) Includes 634 square miles of *taungya* and Karen areas in the Northern, Southern and Tenasserim Circles.
Central Provinces including Berar.	22,732	257	149	22,840	
Assam . . .	3,707	71	...	3,778	(*f*) Includes 679 square miles of *leased* forests in the Dangs, Surat District.
Coorg	238	4	....	242	(*g*) Includes 1 square mile of *leased* forests in the Dangs, Surat District.
North-West Frontier Province.	234	...	...	234	(*h*) Includes 463 square miles of *leased* forests in the Dangs, Surat District.
Ajmer	139	3	...	142	(*i*) Includes 217 square miles of *leased* forests in the Dangs, Surat District.
Baluchistan . . .	203	...	...	203	(*j*) Includes 1,177 square miles of *leased* forests.
Andamans . . .	156	...	...	156	(*k*) Includes 1 square mile of *leased* forests.
Total Bengal . .	58,346	1,523	240	59,629	(*l*) Includes 479 square miles of *leased* forests.
„ Madras . .	17,154	555	52	17,657	(*m*) Includes 699 square miles of *leased* forests.
„ Bombay . .	(*f*)13,924	(*g*)53	(*h*)513	(*i*)13,464	
Grand Total, 1902-03	(*j*)89,424	(*k*)2,131	(*l*)805	(*m*)90,750	
„ „ 1901-02	88,140	2,536	1,252	(*j*)89,424	

APPENDIX II.

[*Vide* paragraph 2.]

Area of all forest lands.

Province.		Forest area, in square miles.				Proportion of forests to whole area of Province.	Remarks.
Name.	Area, in square miles.	Reserved.	Protected.	Unclassed State.	Total.		
						Per cent.	
Bengal	152,322	5,961	3,496	4,033	13,490	8·9	
United Provinces of Agra and Oudh.	106,149	(*a*)4,071	30	43	(*d*)4,144	3·9	(*a*) Includes 153 square miles of *leased* forests.
Punjab	97,223	(*b*)2,294	4,921	2,265	9,480	9·8	(*b*) Includes 329 square miles of *leased* forests and does not take into account 113 square miles of Military reserves and 4 square miles of Civil reserves.
Burma	162,525	(*c*)19,708	...	87,985	107,693	66·3	(*c*) Includes 634 square miles of *taungya* and Karen areas in Northern, Southern and Tenasserim Circles.
Central Provinces including Berar.	104,170	22,840	...	7	22,847	21·9	(*d*) Excludes 9,363 square miles of Naini Tal District Protected forests.
Assam	49,961	3,778	...	18,300	22,078	45·1	
Coorg	1,582	243	39	(*f*)322	604	38·2	
North-West Frontier Province.	13,276	234	...	...	234	1·8	
Ajmer	2,646	142	...	6	148	5·6	
Baluchistan	(*e*)9,403	203	...	...	203	2·2	(*e*) British Baluchistan only. There are also administered areas in the agency territories, covering 36,401 square miles.
Andamans	3,143	166	...	1,795	1,951	62·1	South Island only.
Total Bengal	701,400	59,639	8,486	114,757	182,872	26·1	(*f*) Reserved lands.
Madras	141,771	17,657	...	(*f*)1,798	19,455	13·7	(*g*) Includes Sindh.
Bombay	(*g*)122,902	(*h*)13,461	1,033	...	14,497	11·8	(*h*) Includes 217 square miles of *leased* forests in the Dangs, Surat District.
Grand Total, 1902-03	966,073	(*i*)90,750	9,519	116,555	216,824	22·4	(*i*) Includes 699 square miles of *leased* forests.
„ „ 1901-02	975,012	(*j*)89,424	9,418	118,037	216,879	22·2	(*j*) Includes 1,117 square miles of *leased* forests.

APPENDIX III.

[*Vide* paragraph 3.]

Progress in Forest Settlements.

Province.	Areas already settled at the commencement of the year.			Areas finally settled during the year.						Area undergoing settlement.								
				Area.			Expenditure incurred.			At commencement of the year.			Taken in hand during the year.			Expenditure incurred during the year.		
	Reserved forests.	Protected forests.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.
	Sq. M.	Sq. M.	Sq. M.	Sq. M.	Sq. M.	Sq. M.	R	R	R	Sq. M.	Sq. M.	Sq. M.	Sq. M.	Sq. M.	Sq. M.	R	R	R
Bengal	5,961	...	5,961	...	...	...	...	...	...	600	...	600	1	...	1	1,536	...	1,536
United Provinces	3,919	30	3,949	1	...	1	...	...	...	...	...	...	14	...	14	2	...	2
Punjab	(a) 2,087	4,833	6,975	...	...	...	...	...	...	13	205	218	...	...	...	...	...	...
Burma	18,777	...	18,777	933	...	933	2,919	...	2,919	726	...	726	937	...	937	9,255	...	9,255
Central Provinces including Berar.	22,918	...	22,918	134	...	134	...	...	...	13	...	13	10	...	10	...	...	...
Assam	3,707	...	3,707	70	...	70	183	...	183	57	...	57	...	...	...	40	...	40
Coorg	238	...	238	4	...	4	152	...	152	263	...	263	60	...	60	12,501	...	12,501
North-West Frontier Province.	234	...	234	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	139	...	139	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	203	...	203	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Andamans	156	...	156	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Bengal	58,369	4,918	63,237	1,192	...	1,192	3,581	...	3,581	1,672	205	1,877	1,022	...	1,022	23,334	...	23,334
" Madras	17,010	...	17,010	502	...	502	(b) 3,353	...	3,353	1,041	...	1,041	66	...	66	(c) 10	...	10
" Bombay	13,370	575	13,945	17	...	17	...	...	...	53	...	53	15	...	15	11,070	...	11,070
Grand Total, 1902-03	88,749	5,493	94,242	1,711	...	1,711	6,934	...	6,934	2,766	205	2,971	1,103	...	1,103	34,414	...	34,414
" " 1901-02	67,122	5,941	93,063	1,807	44	1,851	12,408	...	12,408	3,335	367	3,702	1,149	...	1,149	22,018	...	22,018

(a) Excludes 161 square miles of Departmental reserves in Chamba and 164 square miles in Bashahr.
(b) " R5,064 incurred in other than Forest Accounts.
(c) " R13,001 " " " " "

APPENDIX IV.

[*Vide* paragraph 4.]

Demarcation and Maintenance of Boundaries.

Province.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	138	3,128	104	3,390	...	1,743	5,133*	...	...
United Provinces	Central Circle	7	323	2,211	2,541	23	698	3,262	1,012	1,431
	Oudh „	3	346	890	1,239	17	273	1,529	128	1,420
	School „	30	321	436	787	146	298	1,231	545	1,152
	Total	40	990	3,537	4,567	186	1,269	6,022	1,685	4,003
Punjab	.....	82	2,834	7,110	10,026	4,164	1,198	15,388	618	2,794
Lower Burma	Pegu Circle	178	1,009	1,483	2,670	310	1,047	4,027	2,122	4,035
	Tenasserim Circle	140	482	2,596	3,218	5	592	3,815	799	3,191
	Total	318	1,491	4,079	5,888	315	1,639	7,842	2,921	7,226
Upper Burma	Northern Circle	175	1,380	1,435	2,990	74	531	3,595	714	1,714
	Southern „	279	900	1,946	3,125	550	465	4,140	4,702	3,233
	Total	454	2,280	3,381	6,115	624	996	7,735	5,416	4,947
Central Provinces	Northern Circle	5	6,830	4,282	11,117	4	1,434	12,555	...	2,138
	Southern „	65½	11,064	1,275	12,404½	136	949	13,489½	361	4,530
	Berar „	21	903	849	1,773	7	209	1,989	266	770
	Total	91½	18,797	6,406	25,294½	147	2,592	28,033½	627	7,738
Assam	.....	22	1,135	8	1,165	4	1,498	2,667	136	2,370
Coorg	.....	...	37	245	282	...	15	297	393	113
North-West Frontier Province.	.....	...	26	658	684	...	...	684	...	270
Ajmer	.....	2	...	242	244	...	158	402	80	29
Baluchistan	.....	...	...	...	...	...	...	...	...	...
Andamans	.....	...	...	42	42	29	116	187	...	...
Total Bengal	.....	1,147½	30,718	25,832	57,697½	5,469	11,224	74,390½	11,881	29,590
Madras	Northern Circle	570	1,618	6,450	8,638	581	510	9,729	4,772	2,189
	Central „	231	6,883	7,210	14,324	578	200	15,102	2,755	1,549
	Southern „	396	627	6,732	7,745	709	708	9,153	8,713	1,211
	Total	1,197	9,128	20,382	30,707	1,859	1,418	33,984	16,240	4,949
Bombay	Northern Circle	640½	1,403	2,315	4,358½	629	426	5,413½	5,352	1,971
	Central „	176	5,008	12,197	17,381	5,221	851	23,463	1,900	1,058
	Southern „	341	291	1,299	1,931	10,554	662	13,147	16,488	961
	Sindh „	37	1,405	526	1,968	...	590	2,558	260	...
	Total	1,194½	8,107	16,337	25,638½	16,404	2,539	44,581½	24,000	3,990
Grand Total, 1902-03	.....	3,539	47,953	62,551	114,043	23,732	15,181	152,956	52,121	38,529
„ „ 1901-02	.....	4,769	46,484	61,108	112,361	24,953	15,576	152,890	63,240	46,475

N.B.—Boundaries include, beside the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-division such as blocks, compartments and coupes.

* Wrongly shown as 5,137 miles in the Bengal Report for 1902-03.

APPENDIX V.

[*Vide* paragraph 5.]

Forest Areas Surveyed and under Survey.

Province.	4" = 1 mile.		8" = 1 mile.		16" = 1 mile.		Total of detail survey on 4" scale and over.		Expenditure on surveys including mapping and furnishing charges.
	Outturn.	Cost rate.	Outturn.	Cost rate.	Outturn.	Cost rate.	1902-03.	Total up to date. (1)	1902-03. (2)
	Sq. miles.	R	Sq. miles.	R	Sq. miles.	R	Sq. miles.	Sq. miles.	R
Bengal	232	64	...	...	...	...	232	1,701	20,446
United Provinces	100	30	...	...	...	...	100	3,939	4,854
Punjab	127	40	...	...	...	...	127	3,392	7,253
North-West Frontier Province	173	24	...	...	...	...	173	185	4,453
Burma	926	113	...	...	...	...	926	8,715	2,03,785
Central Provinces	226	26	...	...	211(3)	8(3)	226	18,959	20,037
Assam	134	98	...	...	...	...	134	668	20,145
Berar	...	...	...	...	...	...	...	75	...
Total for Bengal	1,918	76	...	...	...	...	1,918	37,624	2,81,574
Madras	1,411(4)	58	...	...	...	...	1,411	12,007	29,664
Bombay	487(4)	61	240	130	6	137	733	9,732	77,086
Totals for Madras and Bombay	1,898	68	240	130	6	137	2,144	21,739	1,76,750
Grand Total in 1902-03	3,816	65	240	130	6	137	4,062	59,363	4,58,324
" " " 1901-02	4,806	62	162	136	...	...	4,968	55,233	4,60,977

(1) Survey of India, other figures are for forest surveys.
(2) Linear miles not included in totals.
(3) Cost rate per linear miles.
(4) Final forest areas for which there are surveys on 4" scale and over, all small scale surveys, boundary surveys and all survey which have been superseded by others are omitted from the totals.
(5) Expenditure is from October 1902 to 30th September 1903.

NOTE.—The 4" Surveys in the Bengal Presidency include the usual record of forest growth.

APPENDIX VI.

[*Vide* paragraph 5.]

Details of Forest Survey Operations.

PROVINCE.	Forests surveyed.	NATURE OF SURVEY OPERATIONS. 4" DETAIL SURVEY. Area.	Cost rate.	TRIANGULATION. Area.	Cost rate.	TRAVERSING. Area.	Cost rate.	Total expenditure.	REMARKS.
		Sq. m.	R	Sq. m	R	Linear miles.	R	R	
BENGAL	Darjeeling, Kalimpong, Kurseong	232	64	330	5	102	18	18,268	
	Singhbhum, Hazaribagh	...	...	...	...	...	...	2,178(a)	(a) Mapping and publishing charges.
								20,446	
ASSAM	Garo Hills, Kamrup	131	97·8	117	23	70	37	19,668	
								477(b)	(b) Mapping and publishing charges.
								20,145	
UNITED PROVINCES — Central Circle.	Kumaun, Garhwal, Ganges, Naini Tal	100	29·7	165	5·7	23	2·4	3,971	
UNITED PROVINCES — Oudh Circle.	Philibhit, Khori, Gorakhpur, Bahraich	...	...	...	...	...	...	884(c)	(c) Mapping and publishing charges.
		...	...	...	...	...	...	4,855	
PUNJAB	Jubal and Taroch	27	47	...	...	...	...	1,279	
	Gujrat	100	34	110	3·5	...	...	3,806(d)	(d) Computation charges.
	Rawalpindi	...	..	...	...	...	...	206(e)	(e) Charges for mapping and boundary survey of 98 linear miles.
	Chamba	...	...	...	...	...	...	1,962	
NORTH-WEST FRONTIER PROVINCE.	Hazara	173	24	30	9	...	...	4,453	
	Total	300	...	140	...	...	...	11,706(f)	(f) Includes R206 spent on computation.
CENTRAL PROVINCES	Chanda(g)	226	25·7	...	...	58	8·4	20,637	(g) The following work was also executed:— Linear miles Levelling . . . 171 Boundary survey (16") 211
BURMA	Bhamo, Ruby Mines, Mandalay	303	64	450	10	310	37	55,316	
	Upper Chindwin, Lower ", Myittha, Yaw, Thayetmyo	623	136·6	1,161	3·2	1,173	44·7	1,48,469	
	Total	926	...	1,611	...	1,983	...	2,03,785	
MADRAS	South Canara, Ganjam, Godaveri, Coimbatore	1,411	58	590, 1,090, 350	5	538	13	99,664	
BOMBAY	.....	487	61	*	19	*	...	77,086	* Not reported.
	GRAND TOTAL, 1902-03	3,816	...	...	...	...	...	4,58,324	
	" " 1901-02	4,806	...	...	...	...	...	4,60,977	

APPENDIX VII.

[*Vide* paragraphs 6 and 7.]

Areas brought under the control of sanctioned Working-Plans up to 30th June 1903 in the provinces outside the Madras and Bombay Presidencies.

Province.	Forest Area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned Working-Plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Sq. miles.	Per cent.
Bengal	5,961	3,496	4,033	13,490	4,295	32
United Provinces	4,071	30	43	4,144	3,765	91
Punjab	2,294	4,921	2,265	9,480	2,643	28
Burma (Lower)	19,708	...	87 985	107,693	2,524	2
„ (Upper)						
Central Provinces including Berar	22,840	...	7	22,847	11,695	51
Assam	3,778	...	18,300	22,078	533	2
Coorg	242	39	323	604	178	29
North-West Frontier Province	234	...	...	234	76	32
Ajmer	142	...	6	148	142	96
Baluchistan	203	...	...	203	...	...
Andamans	156	...	1,795	1,951	...	...
Grand Total in 1902-03	59,629	8,486	114,757	182,872	*25,851	14
„ „ „ 1901-02	58,346	8,627	115,625	182,598	24,322	13

* At the beginning of the year this figure stood at 24,322 square miles which was reduced by 48 square miles owing to transfers, etc., during 1902-03 leaving a balance of 24,274 square miles, which added to 1,577 square miles of newly sanctioned areas made up 25,851 square miles. See Appendix IX.

APPENDIX VIII.

[*Vide* paragraphs 6 and 7.]

Progress in Working-Plans in the provinces outside the Madras and Bombay Presidencies during the year 1902-03.

Province.	Preliminary proposals submitted to the Inspector-General of Forests for Working-Plans.		Completed plans submitted for opinion and remarks of Inspector-General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector-General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
		Square miles.		Square miles.		Square miles.
Bengal	1	39 (*a*)	1	9	1	9
United Provinces — Central Circle	...	...	...	..	...	...
United Provinces — Oudh ,,	...	...	2	345 (*b*)	2	345 (*b*)
United Provinces — School ,,	...	...	...	...	1	154 (*c*)
Punjab	2	1,169 (*d*)	3	16 (*e*)	...	...
Burma (Lower) — Pegu Circle	1	115	...	...	...	...
Burma (Lower) — Tenasserim Circle	2	959	...	...	...	...
,, (Upper) — Northern Circle	...	...	...	...	...	...
,, (Upper) — Southern ,,	2	258	3	313 (*f*)	2	319
Central Provinces — Northern ,,	...	...	...	...	1	1,181
Central Provinces — Southern ,,	1	56	...	...	...	...
Central Provinces — Berar ,,	...	...	...	...	...	...
Assam	...	...	...	...	...	...
Coorg	...	...	...	...	...	...
North-West Frontier Province	1	64	...	...	...	...
Ajmer	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...
Andamans	...	...	...	...	...	...
Total	10	2,660	9	683	7	2,008

(*a*) Old Darjeeling Working-Plan under revision.

(*b*) Revised area of Trans-Sarda Working-Plan (267 square miles) and old area (78 square miles) of Pilibhit open forests Working-Plan. The latter Plan was received in 1901-02, but was returned to Conservator for revision.

(*c*) Includes 77 square miles of old Working-Plans revised and included in Jaunsar-Bawar Plan.

(*d*) Includes 171 square miles of Bashahr Working-Plan under revision.

(*e*) Three square miles of old Shahdera-cum-Jugian Working-Plan and 13 square miles of Kotkhai and Kotguru Working-Plans revised. The latter Plan was received in 1901-02, but was returned to Conservator for revision. Jubal Working-Plan (area 10 square miles), Simla Hill States, received during 1902-03 has been excluded from column 5 as this Plan does not come under the control of the Forest Department.

(*f*) Includes Pozungdaung Working-Plan (81 square miles) which was received in 1901-02, but returned for revision.

APPENDIX IX.

[*Vide* paragraphs 6 and 7.]

Comparative statement of progress made in Working-Plans during the year 1902-03.

Provinces.	Areas for which Working-Plans have been completed and sanctioned.		Areas for which Working-Plans are being compiled.		Area for which Working-Plans have still to be taken in hand.	Total forest area, as in Form No. 46.	Remarks.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
1	2	3	4	5	6	7	8
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	
Bengal	(a)4,295	...	950	...	8,245	13,490	(a) At the commencement of the year the area was 4,381 square miles, of which 86 square miles were disforested and transferred for cultivation. A Working-Plan for the Mal forests (9 square miles) was sanctioned during the year, this area has already been included in column 2.
United Provinces. — Central Circle	(b)1,581	...	...	...	367	1,948	
United Provinces. — Oudh "	(c)1,315	...	...	...	...	1,315	
United Provinces. — School "	(d)792	77	...	...	12	881	
Punjab	(e)2,643	...	1,045	...	5,792	9,480	(b) Seven square miles added during the year owing to re-survey.
Burma (Lower) — Pegu Circle	(f) 1,019	...	80	115	15,437	16,651	
Burma (Lower) — Tenasserim Circle	738	...	449	374	32,443	34,004	
Burma (Upper) — Northern Circle	36	...	...	...	19,647	19,683	(c) Includes 285 square miles of old Kheri Trans-Sarda and Kanjaria Working-Plans and 8 square miles added during the year. These Working-Plans have now been revised and amalgamated, area 267 square miles, 78 square miles of Pilibhit (open forest.) Working-Plan sanctioned during the year is also included in column 2.
Burma (Upper) — Southern "	(g) 442	319	294	287	36,042	37,355	
Central Provinces — Northern Circle	2,614	1,181	2,361	...	(h)3,291	9,447	
Central Provinces — Southern "	(i) 7,175	...	188	...	(j)2,094	9,457	
Central Provinces — Berar "	725	...	828	...	2,390	3,943	(d) Includes 277 square miles of old Behra Dun Working-Plan under revision and 77 square miles of old Jaunsar Bawar Working-Plan revised.—1 square mile added during the year.
Assam	533	...	...	1	21,544	22,078	
Coorg	178	...	22	...	404	604	
North-West Frontier Province	76	...	82	...	76	234	
Baluchistan	...	...	...	...	203	203	
Andamans	...	...	...	...	1,951	1,951	(e) Last year's area has been reduced by 4 square miles owing to transfers, etc., 7 square miles being the area of the Simla Municipal and Catchment Area forests, wrongly included in column 6, have been transferred to column 2.
Aimer	(k)142	...	...	...	6	148	
TOTAL BENGAL	24,274	1,577	6,299	777	1,49,343	1,82,872	
Madras — Northern Circle	249	367	281	339	4,999	6,735	(f) Difference of 4 square miles due to rectification of area.
Madras — Central "	1,243	29	818	1,321	3,871	7,282	(g) The totals of columns 2 and 3 of last year's statement is 399 square miles which includes 5 square miles of unclassed lands in the Yeni Reserve now excluded. 18 square miles of unclassed lands in the Pyinmana Division erroneously omitted last year have now been included.
Madras — Southern "	1,102	1,003	...	57	3,276	5,438	
TOTAL	2,594	1,399	1,099	2,217	12,146	19,455	
Bombay — Northern Circle	798	480	...	...	840	2,118	(h) Includes 1,638 square miles of B. I. areas for which Working-Plans are not required.
Bombay — Central "	849	40	622	464	4,294	6,269	(i) Area increased by 14 square miles due to transfers, etc.
Bombay — Southern "	754	135	520	103	3,543	5,057	(j) Includes 1,690 square miles consisting chiefly of B. I. areas for which Working-Plans are not required.
Bombay — Sindh "	176	188	518	143	27	1,052	
TOTAL	2,577	843	1,660	711	8,705	14,497	(k) Three square miles added during the year owing to rectification of area.

N. B.—The Madras and Bombay the figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

APPENDIX X.

[*Vide* paragraphs 8 and 9.]

Expenditure on Communications and Buildings during the year 1902-03.

Provinces.	New Work.		Repairs.		Other Works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	R	R	R	R	R	R
Bengal	24,421	18,548	12,017	8,523	2,035	65,544
United Provinces	39,070	19,715	32,331	18,746	10,201	1,20,063
Punjab	11,923	5,075	5,220	3,039	5,779	31,036
Burma	50,113	6,345	18,871	5,125	12,380	92,834
Central Provinces including Berar	20,148	14,195	11,671	12,162	5,371	63,547
Assam	2,667	4,430	6,520	2,386	1,060	17,063
Coorg	500	583	846	1,353	361	3,643
North-West Frontier Province	1,315	267	642	298	30	3,052
Ajmer	426	282	75	70	215	1,068
Baluchistan	177	...	61	...	...	238
Andamans	1,324	9,787	922	623	...	12,656
Total Bengal	1,52,584	79,227	89,176	52,325	37,432	4,10,744
„ Madras	32,562	19,678	21,177	23,926	9,806	1,07,149
„ Bombay	22,650	5,085	7,967	15,350	1,613	52,665
Grand Total, 1902-03	2,07,796	1,03,990	1,18,320	91,601	48,851	5,70,558
„ „ 1901-02	1,51,621	1,07,020	1,07,218	1,02,244	45,402	5,16,505

APPENDIX XI.

[*Vide* paragraphs 10 and 11.]

* Breaches of Forest Rules.

Province.	Number of cases decided by the courts.	Number of cases compounded.	Total.	Proportion of convictions to the total number of cases decided by the courts.
				Per cent.
Bengal	162	3,155	3,317	84·6
United Provinces	106	549	655	84·9
Punjab	873	2,894	3,767	81·4
Burma	673	1,473	2,146	85·9
Central Provinces including Berar	881	6,813	6,694	77·9
Assam	116	221	337	79·3
Coorg	4	17	21	75·0
North-West Frontier Province	17	531	548	82·4
Ajmer	275	257	532	87·6
Baluchistan	114	111	225	90·4
Andamans	4	...	4	50·0
Total Bengal	2,725	15,521	18,246	83·2
Madras	6,739	13,665	20,404	89·6
Bombay	1,558	7,704	9,262	84·9
* Grand Total 1902-03	11,022	36,890	47,912	86·9
* Grand Total 1901-02	11,601	34,497	46,098	86·9
* Grand Total 1900-01	11,273	32,803	44,076	86·7
* Grand Total 1899-1900	10,569	31,603	42,172	85·0

* Includes cases which were pending at the close of the previous year.

*APPENDIX XII.

[*Vide* paragraphs 12, 13 and 14.]

Breaches of Forest Rules in the various provinces in India.

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Grand total of cases.
Bengal	25	83	18	69	8	2,248	893	112	74	26	3	1	107	2,357	919	173	3,556
United Provinces	18	99	19	25	1	259	131	38	30	177	3	5	49	526	153	68	796
Punjab	28	427	323	94	22	1,311	1,474	13	147	49	2	...	197	1,787	1,799	107	3,890
Burma	49	497	28	140	16	973	65	495	64	46	...	3	129	1,486	93	639	2,347
Central Provinces including Berar.	79	121	61	102	160	3,105	2,864	178	487	163	1	...	726	3,389	2,926	280	7,321
Assam	2	86	1	25	4	175	9	32	10	...	...	...	16	261	10	58	345
Coorg	...	4	...	1	...	4	5	6	...	...	...	...	...	8	5	7	20
North-West Frontier Province	11	9	6	1	1	212	285	3	...	8	8	...	12	259	299	4	574
Ajmer	...	241	30	4	2	179	43	33	3	64	1	1	5	484	74	38	601
Baluchistan	1	94	16	4	...	20	91	...	3	1	1	...	4	115	108	4	231
Andamans	...	4	...	...	...	...	...	...	...	...	...	...	...	4	...	...	4
Total Bengal	213	1,965	502	456	214	8,507	5,865	911	318	504	19	10	1,245	10,976	6,386	1,378	19,633
Madras	74	3,411	2,591	490	14	8,258	6,253	816	322	467	314	55	470	12,136	9,158	1,361	23,125
Bombay	160	696	425	239	115	4,159	2,875	555	2,123	1,603	95	75	2,412	6,458	3,395	869	13,134
Grand Total, 1902-03	456	5,772	3,518	1,186	343	20,924	14,993	2,282	3,328	2,574	428	140	4,127	29,270	18,939	3,608	55,944
" " 1901-02	456	6,716	3,639	1,003	473	19,964	13,340	2,307	3,609	2,662	383	114	4,541	29,372	17,353	3,424	54,690
" " 1900-01	355	6,877	3,647	1,101	294	19,079	12,180	2,011	2,061	2,823	626	117	3,340	28,749	17,053	3,229	52,341
" " 1899-1900	453	6,785	3,252	1,090	334	19,798	11,621	2,345	2,899	3,088	1,357	123	3,686	29,672	16,233	3,555	53,146

* This includes only the new cases of the year; not those which were left pending at the close of the previous year.

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APPENDIX XIII.

[*Vide* paragraphs 17 and 18.]

Causes of Forest fires.

Province.	I.—Fires due to preventible causes.				II.—Other fires.				Total	
	Fires originating in Departmental Fire-Conservancy operations.		External fires crossing the Fire traces.		Fires due to carelessness of outsiders.		Fires originating from intention or malice.			
	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.
Bengal	12	7	29	46	68	38	19	31	128	122
United Provinces — Central Circle	8	3	13	7	21	7	1	...	43	17
United Provinces — Oudh „	10	2	12	27	14	35	13	29	49	93
United Provinces — School „	6	...	4	1	16	9	...	...	26	10
	24	5	29	35	51	51	14	29	118	120
Punjab	7	...	20	3	96	3	80	22	203	28
Burma — Pegu Circle	14	15	23	281	44	108	26	54	107	458
Burma — Tenasserim Circle	13	2	17	138	30	78	18	108	78	326
Burma — Northern „	29	165	29	74	48	464	7	13	113	716
Burma — Southern „	18	60	7	31	100	190	7	5	132	286
	74	242	76	524	222	840	58	180	430	1,786
Central Provinces — Northern Circle	31	55	23	37	107	147	8	2	169	241
Central Provinces — Southern „	31	13	48	88	100	102	63	189	242	392
Central Provinces — Berar „	11	21	3	2	50	21	4	2	68	46
	73	89	74	127	257	270	75	193	479	679
Assam	1	...	6	18	15	1	1	...	23	19
Coorg	3	1	2	1	7	3	...	...	12	5
North-West Frontier Province	...	...	...	...	...	...	54	10	54	10
Ajmer	3	1	1	...	5	1	...	...	9	2
Total Bengal	197	345	237	754	721	1,207	301	465	1,456	2,771
Madras — Northern Circle	10	4	34	64	109	85	27	34	180	187
Madras — Central „	17	16	36	18	165	78	220	127	438	239
Madras — Southern „	6	...	25	11	209	80	55	27	295	118
Total	33	20	95	93	483	243	302	188	913	544
Bombay — Northern Circle	19	1	72	22	349	83	52	8	492	114
Bombay — Central „	52	34	80	38	965	845	51	125	1,148	1,042
Bombay — Southern „	6	1	30	14	657	127	24	4	717	146
Bombay — Sindh „	...	...	12	1	93	9	12	5	117	15
Total	77	36	194	75	2,064	1,064	139	142	2,474	1,317
Grand Total 1902-03	307	401	526	922	3,268	2,514	742	795	4,843	4,632
Grand Total 1901-02	336	356	492	573	3,727	2,467	479	340	5,034	3,736

APPENDIX XIV.

[*Vide* paragraphs 19 and 20]

Protection from cattle.

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq m.	Sq. m.	Sq. m.	Sq. m.
Bengal	5,961	5,406	23	3,496	1,753	526	8,033	...	...	13,490	7,161	549
United Provinces	4,071	2,029	522	30	...	30	43	1	30	4,144	2,030	552
Punjab	2,294	605	457	4,921	52	75	2,265	4	190	9,480	661	722
Burma	19,705	16,363	2,275	...	...	...	87,985	...	...	107,693	16,363	2,275
Central Provinces including Berar.	22,849	3,991	7,743	...	...	...	7	...	...	22,847	3,991	7,713
Assam	3,773	2,785	968	...	...	...	18,309	...	...	22,078	2,705	938
Coorg	242	163	...	39	...	...	323	...	...	604	163	...
North-West Frontier Province	234	66	(a) 97	...	...	...	...	...	...	234	66	97
Ajmer	142	...	...	...	...	...	6	...	...	148	...	...
Baluchistan	203	110	...	...	...	...	...	...	...	203	110	...
Andamans	156	...	...	...	...	...	1,795	...	...	1,951	...	...
Total Bengal	59,629	31,738	12,105	8,486	1,810	631	114,757	5	220	182,572	33,233	12,956
Madras	17,657	1,778	(b) 37,834	...	...	...	1,798	29	(c) 606	19,455	1,807	(d) 38,508
Bombay	13,161	2,338	4,874	1,633	...	32	...	...	...	14,797	2,332	4,906
Grand Total { 1902-03	90,750	35,548	34,813	9,519	1,810	663	116,555	91	836	216,825	37,452	36,362
Grand Total { 1901-02	69,421	32,530	33,395	9,418	1,895	855	118,037	23	1,158	216,879	36,963	35,711

(a) Includes 52 square miles open to cattle for part of the year.
(b) 3,996 square miles closed to both goats and sheep, and 14,736 square miles closed to goats only.
(c) 47 ditto ditto 619 ditto
(d) 3,145 ditto ditto 15,555 ditto.

APPENDIX XV.

[*Vide* paragraphs 19 and 20.]

Protection from Cattle.

Province.	Circle.	Grazed on payment. Number of animals. At full rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	At privileged rates. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Grazed free. Number of animals. By right under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	During pleasure of Government or otherwise than under Settlement. Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	3,453	10,171	1,830	...	35	9,603	200,470	17,162	...	554	23,782	76,671	23,837	...	...	26	649	...	...	...
United Provinces.	Central	24,941	69,810	11,363	9	1,241	5,119	32,256	93,195	...	1,758	5,500	109,358	6,019	...	...	39	1,017	...	...	75
	Oudh	22,091	75,634	5,635	...	17	25,315	109,372	8,925	...	35	534	3,863	...	...	...	1,226	3,873	524	...	55
	School	1,584	38,409	18,372	4,301	9,072	1,056	8,711	110	...	...	578	14,446	35,906	...	20	...	1,380	...	...	...
Total	...	47,716	183,853	35,370	4,310	10,330	31,490	150,339	102,230	...	1,793	6,612	127,667	41,925	...	20	1,265	6,270	524	...	130
Punjab	...	11,584	30,028	448,706	5,037	475	1,052	13,455	240,834	82	181	145,135	622,483	567,366	282	19,129	50	949	433	3,625	980
Burma	Pegu	1,090	883	...	...	...	...	...	...	...	...	15,998	40,010	...	...	...	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	2,511	1,925	...	16	...	...	...	...	...	...
	Northern	...	...	...	...	...	...	...	...	...	...	8,705	1,839	...	...	...	2,014	197	...	...	618
	Southern	90	175	...	...	14	...	...	...	...	...	...	39,970	...	...	...	10	22	...	...	202
Total	...	1,180	1,063	...	...	14	...	...	...	...	...	27,214	83,744	...	16	...	2,024	219	...	...	820
Central Provinces.	Northern	177,712	697,143	61,595	6	4,230	...	...	...	...	...	...	...	...	...	...	...	21,709	...	...	...
	Southern	87,409	776,119	200,650	1	567	19,134	120,510	553	...	19	...	...	...	...	...	3,078	23,465	4,338	...	...
	Berar	101,555	550,560	410,168	90	1,719	1,450	12,978	35	...	...	...	197,221	...	...	...	18	12,319	90	...	17
Total	...	366,676	2,023,822	672,413	97	6,579	20,643	133,488	593	...	19	...	197,221	...	...	...	3,096	57,493	4,428	...	17
Assam	...	30,767	5,737	31	...	144	...	...	...	...	...	...	...	...	...	...	46,611	247,297	11,733	...	758
Coorg	...	537	2,723	...	...	...	...	...	...	...	...	...	1,756	...	...	...	...	...	...	...	...
North-West Frontier Province.	...	1,363	1,293	...	...	43	...	...	...	...	...	370	740	...	...	...	799	4,914	...	...	31
Ajmer	...	200	1,384	...	...	...	506	3,597	...	...	...	...	...	...	...	...	32	728	...	...	...
Baluchistan	...	138	2,187	393	...	54	...	43	950	...	55	...	751	16,632	1	224	...	...	...	...	...
Total Bengal	1902-03	463,631	2,282,316	1,158,745	9,444	17,674	63,294	501,392	361,889	82	2,602	203,117	1,111,027	649,830	297	19,373	53,903	313,549	17,166	3,625	2,738
	1901-02	468,707	2,336,721	1,019,270	12,215	18,697	...	368,470	346,087	189	2,461	211,627	1,225,965	665,874	283	19,735	50,794	287,144	13,872	499	1,445
Madras	Northern	85,872	459,115	805,516	...	23	3,181	21,097	7,597	...	...	...	2,685	5,505	...	...	974	3,054	611	...	...
	Central	32,029	713,879	783,508	...	33	9	3,090	1,070	...	...	...	1,900	...	...	...	1,891	6,426	373	...	...
	Southern	26,353	291,386	109,826	...	32	...	1,840	...	...	...	2,333	...	...	...	...	...	...	...	...	...
Total	1902-03	145,254	1,464,380	1,704,850	...	88	3,190	26,027	8,667	...	...	2,333	4,585	5,505	...	...	2,865	9,480	984	...	...
	1901-02	122,443	1,266,856	2,445,916	...	498	10,550	54,475	9,996	...	...	1,794	4,585	5,505	...	...	5,018	21,362	603	...	...
Bombay	Northern	159	1,070	...	...	...	1,985	6,122	...	...	...	31,961	140,434	...	...	1,154	44,615	50,563	...	...	...
	Central	6,506	27,227	162,072	...	1,784	23,683	200,194	22,178	210	4,867	...	...	...	...	...	5,981	41,956	259	...	655
	Southern	2,659	704	15,252	...	2	98,616	308,839	70,503	...	162	...	...	...	...	...	10	1,759	175	...	...
	Sindh	45,290	51,134	223,309	9,061	191	5,468	10,385	6,730	531	...	4,675	19,609	91	13	559	1,174	1,952	2,867	2,470	2,873
Total	1902-03	54,614	80,125	406,732	9,061	1,977	129,752	525,540	99,406	741	5,029	36,636	160,043	91	13	1,710	51,810	96,230	3,301	2,470	3,529
	1901-02	50,205	77,317	355,163	7,339	1,880	151,347	469,672	176,455	446	1,513	10,534	45,516	91	13	1,695	45,315	237,123	6,927	2,038	7,096
Grand Total.	1902-03	663,502	3,826,821	3,270,327	18,505	20,739	196,236	1,052,959	469,962	823	7,631	242,086	1,275,655	655,426	310	12,083	108,581	424,259	21,451	6,095	6,265
	1901-02	641,355	3,713,894	3,820,349	19,555	21,075	227,599	893,617	532,538	635	3,977	223,955	1,275,996	671,470	296	12,431	101,157	575,629	22,422	2,536	8,541

APPENDIX XVI.

[*Vide* paragraph 24.]

Area of Plantations and the cost of the year's work.

Province.	Area in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at close of the year. Regular Plantations.	Taungyas.	Total.	Cost of operations during the year.
													R
Bengal	2,937	...	2,937	65	...	65	48	...	48	2,954	...	2,954	574
United Provinces	3,311	...	3,311	44	...	44	...	...	...	3,355	...	3,355	1,196
Panjab	696	...	696	398	...	398	119	...	119	975	...	975	677
Burma	*2,562	*60,103	*63,635	...	3,042	3,042	...	1	1	3,562	63,144	66,736	58,601
Central Provinces including Berar.	...	...	...	...	...	...	...	...	...	...	...	...	...
Assam	3,239	7	3,246	13½	...	13½	...	...	...	3,252½	7	3,259½	1,460
Coorg	2,369	587	2,956	...	95	95	247	...	247	2,062	682	2,744	2,194
North-West Frontier Province.	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	921	...	921	21	..	21	...	...	...	942	...	942	154
Baluchistan	33	...	33	...	...	...	...	...	...	33	..	33	128
Andamans	461	...	461	154	...	154	150	...	150	465	...	465	1,285
Total Bengal	17,489	60,697	78,186	695½	3,137	3,832½	564	1	565	17,620½	63,833	81,453½	69,569
Madras	38,525	...	38,525	†1,902	...	†1,902	452	...	452	39,975	...	39,975	36,264
Bombay	6,942	...	6,942	3,524	...	3,524	3,608	...	3,608	6,858	...	6,858	9,605
Grand Total 1902-03	62,956	60,697	123,653	6,121½	3,137	9,258½	4,624	1	4,625	64,453½	63,833	128,286½	1,15,738
Grand Total 1901-02	59,376	48,540	107,916	5,150	3,026	8,176	1,421	...	1,421	63,105	51,566	114,671	1,29,942

* Corrected figures.
† Includes 759 acres due to correction of figures representing the closing balance of the year 1901-02.
‡ Includes 12,938 acres of topes.

APPENDIX XVII.

[*Vide* paragraphs 29 to 34.]

Outturn of Forest Produce.

I

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			Average outturn per square mile. Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	22,545,106	14,022,820	1,92,363	17,314,178	4,561,201	1,33,928	651,693	7,333,496	6,217	3,782	2,353	32	4,953	1,305	38	162	1,818	1
United Provinces	14,474,628	15,060,932	2,70,629	429,850	39,370	3,275	109,835	108,205	1,617	3,556	3,849	66	14,328	1,312	109	2,555	2,470	37
Punjab	6,721,228	826,470	1,79,506	22,219,523	39,396	2,52,395	13,455,205	111,339	94,167	2,931	360	78	4,515	8	51	5,940	49	42
Burma	8,612,287	13,925,000	1,21,090	...	...	...	32,853,922	175,751,000	112,531	437	707	6	...	...	...	371	200	1
Central Provinces including Berar.	24,825,341	19,514,547	8,87,265	...	...	...	...	...	71	1,088	876	39	...	...	...	...	...	11
Assam	1,336,432	1,459,993	26,101	...	...	...	11,399,420	28,701,808	365,046	354	386	7	...	...	..	822	1,563	20
Coorg	297,183	94,850	2,551	161,652	26,500	15,281	...	...	...	367	168	5	4,145	680	392	...	...	...
North-West Frontier Province.	1,322,810	...	15,327	...	...	...	...	...	...	5,653	...	66	...	...	...	...	...	...
Ajmer (a)	320,415	2,733	31,186	1,400	...	119	...	...	...	2,256	16	219	...	...	...	...	...	...
Baluchistan	20,120	...	11,545	...	...	...	410,606	...	48	99	...	57	...	...	...	...	...	...
Andamans (b)	428,906	233,157	458	...	...	...	1,539,848	425,930	4,716	2,749	149	3	...	...	...	852	238	3
Total Bengal in 1902-03	80,817,462	65,755,002	17,37,901	40,126,603	4,666,466	4,04,998	60,401,578	212,429,828	5,84,416	1,355	1,103	29	4,493	550	48	525	4,852	5
" " " 1901-02	70,651,032	66,725,392	16,93,446	41,509,744	4,815,629	4,10,094	58,574,959	71,318,404	5,60,602	1,211	1,145	29	4,812	558	48	507	617	5

II

Presidency.	Total area under control of Forest Department.	Timber and Fuel.	Bamboos.	Minor produce.	Average outturn per sq. mile. Timber and Fuel.	Bamboos.	Minor produce.
	Sq. m.	C. ft.	No.	R	C. ft.	No.	R
Bengal	182,872	181,345,643	282,851,296	27,27,405	992	1,547	15
Madras	19,455	21,958,556	35,844,728	11,44,255 (c)	1,129	1,842	60
Bombay (d)	14,497	42,596,413	4,479,201	7,39,691	2,868	309	51
Grand Total 1902-03	216,824	245,900,612	323,175,225	46,11,351	1,134	1,490	21
Grand Total 1901-02	216,879	231,601,077	186,799,338	45,38,133	1,068	861	20

(a) Excludes R45 worth of bamboos sold to purchasers, the number not being given.
(b) Includes 72,545 cubic feet of timber, 204,540 cubic feet of fuel, 736,779 bamboos, and R42 worth of minor produce removed by Settlement Officers.
(c) Includes R1,500 realized from confiscated minor produce.
(d) Excludes R20,666 worth of sandalwood.

APPENDIX XVIII.

Forest Produce removed by different Agencies.

APPENDIX

[*Vide*

Forest Produce removed

Province.	Timber.				Fuel.			
	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Bengal	143,545	6,392,932	14,003	164,836	315,709	19,044,726	22,226	14,412,910
United Provinces	461,713	4,445,801	147,182	507,603	607,858	5,153,577	205,614	3,489,923
Punjab	1,214,389	821,003	40,933	957,379	4,746,881	1,173,783	101,692	33,309,897
Burma	3,267,979	18,109,653	283,297	936,431	32,076	16,213,941	2,592	2,620,235
Central Provinces including Berar	641,061	2,332,274	289,784	...	1,344,004	17,106,866	3,111,352	...
Assam	64,549	3,538,335	884,061	...	8,341	2,748,633	5,481,933	...
Coorg	112,458	130,322	1,750	...	13,250	111,060	...	...
North-West Frontier Province	210,990	601,490	24,419	...	36,718	378,402	5,621	34,960
Ajmer	187	1,695	...	1,711	474	317,273	476	...
Baluchistan	439	4,263	4,929	...	20,331	329,629	1,224	...
Andamans (b)	422,240	15,557	25,575	...	992,075	3,412	223,800	...
Total Bengal 1902-03	6,599,540	36,396,329	1,710,933	2,557,960	8,117,709	62,651,462	9,156,730	53,867,945
Total Bengal 1901-02	6,230,861	37,849,950	1,336,286	3,252,935	7,574,518	54,397,645	5,479,615	51,610,927
Madras	142,500	2,790,764	1,991	54,303	6,941,107	11,154,242	7,750	257,899
Bombay (d)	914,464	3,030,506	150,428	47,485	4,281,019	25,721,452	3,306	9,044,753
Grand Total 1902-03	7,956,504	42,225,599	1,863,352	2,669,748	19,342,835	99,227,096	9,167,786	54,129,150
Grand Total 1901-02	7,845,257	42,888,731	1,500,769	3,299,172	16,149,156	88,503,713	5,872,271	65,498,461

(a) Excludes R45 worth of bamboos, the number of
(b) Excludes 72,545 cubic feet of timber, 204,550
(c) Includes R1,502 realized from confiscated minor
(d) Excludes R2,656 worth of sandalwood.

XVIII.

paragraph 35.]

by different Agencies.

Bamboos.				Minor Produce including Grass and Grazing.				Province.
Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	
No.	No.	No.	No.	R	R	R	R	
535,120	10,781,147	14,650	5,592,600	2,351	2,04,769	1,698	1,23,687	Bengal.
545,262	15,049,452	...	220,793	25,144	1,97,399	3,728	49,250	United Provinces.
113,670	863,534	...	...	28,891	1,49,176	7,944	3,40,154	Punjab.
16,000	165,447,000	46,000	4,167,000	3,223	1,26,062	4,528	99,808	Burma.
117,798	17,524,231	1,872,518	...	32,520	7,75,243	79,576	...	Central Provinces including Berar.
1,493	27,811,668	2,348,500	...	18,602	73,007	2,92,528	...	Assam.
...	116,150	5,200	...	...	17,176	...	656	Coorg.
...	...	...	...	1,282	8,422	4,942	681	North-West Frontier Province.
...	(a) 2 233	...	...	3,081	2,028	1,897	24,299	Ajmer.
...	...	...	...	57	1,226	399	9,891	Baluchistan.
19,356	32,000	341,000	...	4,556	123	448	...	Andamans (b).
1,378,701	(a) 266,627,555	4,627,668	9,980,393	1,19,713	15,54,631	4,04,588	6,48,426	1902-03 } Total Bengal.
2,197,630	125,847,562	2,843,734	14,009,499	1,34,658	15,01,875	3,33,758	12,08,757	1901-02 } Total Bengal.
320,286	35,367,808	22,014	134,620	44,903	(c) 10,55,502	1,731	42,119	Madras.
23,559	4,017,862	20,722	417,008	30,387	3,8[illegible],254	23,990	3,04,060	Bombay (d).
1,722,546	306,013,225	4,670,604	10,532,671	1,95,903	29,91,387	4,30,309	9,94,605	1902-03 } Grand Total.
2,442,182	168,802,991	3,287,770	14,538,395	2,45,160	29,53,483	3,50,276	15,04,150	1901-02 } Grand Total.

which is not reported.
cubic feet of fuel, 236,779 bamboos, and R47 worth of minor produce removed for local use in the Settlement.
forest produce.

APPENDIX XIX.

[*Vide* paragraphs 36, 37 and 39.]

Comparative Statement of Revenue and Expenditure.

Provinces.	Revenue.		Surplus.		Deficit.		Proportion of surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1902-03.	Average for preceding 5 years.	1902-03.	Average for preceding 5 years.	1902-03.	Average for preceding 5 years.		
	R	R	R	R	R	R	Per cent.	R
Imperial . . .	3,669	9,741	...	...	31,358	76,144	...	...
Bengal . . .	12,56,247	11,65,215	6,18,233	5,32,634	...	...	49·2	46
United Provinces . .	20,25,324	15,70,084	10,11,326	6,09,196	...	...	49·9	244
Punjab . . .	15,86,408	13,17,455	6,26,313	4,25,261	...	...	39·5	66
Burma . . .	67,39,053	74,61,316	38,48,790	49,87,034	...	...	57·1	36
Central Provinces and Berar.	16,84,428	12,51,512	4,27,140	1,68,016	...	...	25·4	19
Assam . . .	5,80,200	4,82,717	2,52,701	1,57,034	...	...	45·6	11
Coorg . . .	1,90,730	1,51,245	1,01,295	72,330	...	...	53·1	168
North-West Frontier Province.	1,01,123	33,559	47,038	...	...	11,032	46·5	201
Ajmer . . .	9,736	11,543	...	...	6,641	4,257	...	...
Baluchistan . . .	15,336	15,736	...	...	3,904	11,763	...	...
Andamans . . .	3,26,065	2,93,712	44,333	1,19,115	...	...	13·6	23
Forest School . .	3,252	3,140	...	...	63,086	65,533	...	...
Forest Surveys . .	3,034	346	...	...	30,951	33,528	...	...
Total Bengal .	1,45,28,565	1,38,67,325	67,91,227	69,18,613	...	...	46·7	32
Madras .	26,13,819	22,86,580	7,78,267	6,37,373	...	...	29·8	40
Bombay . . .	23,29,156	25,33,653	6,52,716	4,99,827	...	...	28·0	45
Grand Total 1902-03 .	1,94,71,540	1,86,87,558	82,22,209	80,55,813	...	...	42·2	38
Grand Total 1901-02 .	1,72,23,716	1,86,94,000	70,77,327	80,98,213	...	...	39·7	33

APPENDIX XX.

[*Vide* paragraph 38.]

Estimated value of Forest Produce given away free or at reduced rates.

Province.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	R	R	R	R	R	R
Bengal	7,858	70,998	9,295	35,589	91,426	2,15,166
United Provinces . .	60,749	52,669	859	6,283	75,321	1,95,881
Punjab	45,317	3,95,645	...	44,772	3,03,226	7,88,960
Burma	83,538	12,607	13,942	15,968	88,195	2,14,250
Central Provinces including Berar.	56,852	59,544	22,953	21,036	64,709	2,25,099
Assam	65,669	85,513	6,511	2,11,278	88,250	4,57,221
Coorg	192	...	27	...	656	875
North-West Frontier Province.	1,996	680	...	50	5,573	8,289
Ajmer	133	8	...	11	26,979	27,191
Baluchistan . . .	861	14	...	899	9,938	11,212
Andamans . . .	7,672	8,479	170	448	...	16,769
Total Bengal .	3,30,887	6,86,148	53,762	3,35,834	7,54,273	21,60,904
Madras	5,386	4,927	814	40,687	12,230	64,053
Bombay	23,012	1,37,580	4,517	35,349	8,95,942	10,97,000
Grand Total { 1902-03 .	3 59,835	8,28,655	59,093	4,11,870	16,62,453	33,21,957
Grand Total { 1901-02 .	4,02,303	8,29,140	51,970	2,97,833	9,39,534	26,20,780

The revenue realized from grass and grazing in 1902-03 throughout India was R16,11,911.

APPENDIX XXI.

[*Vide* paragraph 38.]

Details of Revenue and Expenditure.

					Amount.	
					R	
Gross Receipts	(a) Wood				1,53,15,118	
	(b) Minor forest produce				13,25,323	
	(c) Forest stamps and commutation fees for forest produce				6,80,632	
	(d) Grazing				13,55,092	
	(e) Revenue from forests not managed by Government				3,72,256	
	(f) Miscellaneous				5,23,119	
				TOTAL REVENUE	1,94,71,540	
					Amount.	Proportion of Expenditure to gross Revenue.
					R	Per cent.
Expenditure	A *Recurring*	(a) Administration.	(i) Superior Staff		23,00,660	11·8
			(ii) Exchange compensation allowance.		87,541	·4
			(iii) Subordinate Staff (including Rangers, Foresters and Guards).		19,10,283	9·8
			(iv) Office Establishments (including Contingencies).		9,31,287	4·8
		(b) Working	(1) Extraction		33,20,368	17·0
			(2) Roads and Buildings		5,51,752	2·8
			(3) Fire-protection		4,29,210	2·2
			(4) Cultural operations		3,71,676	1·9
			(5) Live-stock, stores and plant.		3,45,983	1·8
			(6) Working Plans		72,421	·4
			(7) Rent for leased forests		1,34,930	·7
			(8) Miscellaneous		91,454	·5
		(c) Expenditure on realization of revenue from forests not managed by Government.			30,276	·2
		(d) Forest Science and Education (including all "A" and "B" charges of Forest School).			66,339	·3
				Total	1,06,44,199	54·6
	B Extraordinary	(e) Forest Settlement			1,30,420	·7
		(f) Forest Surveys			3,65,451	1·9
		(g) Forest Demarcation			1,09,251	·6
				Total	6,05,122	3·2
				GRAND TOTAL EXPENDITURE	1,12,49,321	57·8
				Net Revenue	82,22,209	42·2

APPENDIX XXII.

Summary of Revenue and Expenditure of the Forest Department in India for the financial year 1902-03.

APPEN

Summary of Revenue and Expenditure of the

Budget Heads.	Imperial.	Bengal.	United Provinces of Agra and Oudh.	Punjab.	Burma (Lower).	Burma (Upper).	Central Provinces including Berar.	Assam.	Coorg.	North-West Frontier Province.
REVENUE.	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	1,220	1,38,186	5,15,322	12,64,446	23,32,411	10,25,906	5,22,617	59,786	1,46,565	41,072
II.—Timber and other produce removed from the forests by consumers or purchasers.	2,439	10,66,668	14,47,259	2,52,346	9,33,066	18,80,924	11,07,150	4,18,258	43,386	55,856
III.—Drift and waif wood and confiscated forest produce.	...	8,922	15,220	31,309	7,08,076	66,128	2,305	8,136	...	126
IV.—Revenue from forests not managed by Government.	...	...	11,313	2,794	2,97,265	...	965	41,642	...	161
V.—Miscellaneous	...	42,471	36,210	35,513	51,784	43,493	51,391	52,378	779	3,908
Total Revenue .	3,659	12,56,247	20,25,324	15,86,409	37,22,672	30,16,451	16,84,428	5,80,200	1,90,730	1,01,123
EXPENDITURE.										
A.—Conservancy and Works.										
I.—Timber and other produce removed from the forests by Government agency.	22	61,674	2,43,219	4,85,465	4,97,925	3,48,589	3,23,686	11,424	17,852	16,719
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	63,214	34,062	778	21,212	27,707	84,161	3,793	....	150
III.—Drift and waif wood and confiscated forest produce.	...	2,456	5,771	4,495	52,513	31,338	42	52	...	64
IV.—Revenue from forests not managed by Government.	...	...	5,099	...	4,444	...	...	20,235	...	...
V.—Rent of leased forests and payments to shareholders in forests managed by Government.	...	18,578	27,289	37,538	...	...	—15,558	12,005	...	8,043
VI.—Live-stock, stores, tools and plant .	...	20,370	26,610	4,390	88,319	28,350	20,382	17,525	1,636	106
VII.—Communications and buildings .	...	59,713	1,13,379	30,261	45,000	54,092	54,165	16,526	3,085	2,827
VIII.—Demarcation, improvement, and extension of forests.	300	64,699	1,20,608	44,220	2,46,511	2,72,394	1,31,449	25,074	21,647	1,495
IX.—Miscellaneous	...	4,695	4,148	1,711	7,027	5,267	3,997	1,765	612	33
Total A.—Conservancy and Works .	322	2,95,399	5,80,185	6,08,858	9,63,951	7,67,647	6,02,324	1,08,200	44,832	29,437
B.—Establishments.										
I.—Salaries	65,965	2,79,521	3,57,113	2,80,633	4,90,753	4,73,336	5,57,030	1,80,056	37,234	20,509
II.—Travelling allowances . . .	15,807	47,378	48,568	46,393	67,031	74,703	58,503	28,779	5,873	2,838
III.—Contingencies	2,923	15,716	28,132	22,161	32,015	20,824	89,431	10,464	1,498	1,281
Total B.—Establishments . .	84,695	3,42,615	4,33,813	3,51,237	5,89,802	5,68,863	6,54,964	2,19,299	44,605	24,648
Grand Total of Expenditure .	85,017	6,38,014	10,13,998	9,60,095	15,53,753	13,36,510	12,57,288	3,27,499	89,437	54,085
Surplus .	...	6,18,233	10,11,326	6,26,313	21,68,849	16,79,941	4,27,140	2,52,701	1,01,293	47,038
Deficit .	81,358	...	...	...	...	...	...	...	...	...

DIX XXII.

Forest Department in India for the financial year 1902-03.

[*Vide* paragraphs 36, 37 and 39]

Ajmer.	Baluchistan.	Andamans.	Forest School.	Forest Surveys (Imperial).	Total Bengal Presidency.	Madras.	Bombay.	Grand Total.	Budget Heads.
R	R	R	R	R	R	R	R	R	REVENUE.
1,844	5,558	2,24,505	...	...	63,82,433	6,62,298	9,96,874	80,41,610	I.—Timber and other produce removed from the forests by Government agency.
7,316	897	1,332	...	...	72,16,932	18,22,934	12,56,590	1,02,96,456	II.—Timber and other produce removed from the forests by consumers or purchasers.
31	1	...	...	...	2,40,254	12,243	5,017	2,57,514	III.—Drift and waif wood and confiscated forest produce.
...	9,536	...	...	...	3,63,676	...	8,580	3,72,256	IV.—Revenue from forests not managed by Government.
515	344	493	3,252	3,034	3,25,265	1,16,344	60,095	5,01,704	V.—Miscellaneous.
9,736	19,336	2,26,035	3,252	3,034	1,45,28,565	26,13,819	23,29,156	1,94,71,540	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
709	4,866	1,71,563	...	...	21,83,718	3,39,940	3,11,133	28,34,791	I.—Timber and other produce removed from the forests by Government agency.
19	...	...	...	...	2,35,096	1,08,275	43,357	3,86,728	II.—Timber and other produce removed from the forests by consumers or purchasers.
1	...	...	...	...	96,732	1,626	491	98,849	III.—Drift and waif wood and confiscated forest produce.
...	497	...	...	...	30,276	...	...	30,276	IV.—Revenue from forests not managed by Government.
...	...	...	...	...	57,795	22,893	24,147	1,34,940	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
721	82	61,650	1,594	572	2,71,667	69,444	6,376	3,47,487	VI.—Live-stock, stores, tools and plant.
1,307	248	13,824	140	...	3,94,977	1,07,747	49,168	5,51,892	VII.—Communications and buildings.
2,655	153	2,074	...	4,470	9,37,749	3,13,109	2,27,281	14,78,439	VIII.—Demarcation, improvement, and extension of forests.
15	99	9,205	3,154	...	41,623	6,357	46,633	94,618	IX.—Miscellaneous.
4,577	5,945	2,57,921	4,298	5,042	42,79,733	9,69,696	7,06,586	59,38,620	Total A.—Conservancy and Works.
									B.—Establishments.
2,763	13,523	20,113	51,214	21,580	28,58,433	6,70,913	8,13,171	43,42,417	I.—Salaries.
1,854	3,012	3,070	6,140	1,535	4,18,667	1,41,208	1,09,378	6,63,593	II.—Travelling allowances.
743	760	588	3,786	5,823	1,86,160	53,835	45,306	2,85,301	III.—Contingencies.
11,500	17,295	23,781	61,540	28,943	34,57,600	8,65,956	9,67,855	52,91,311	Total B.—Establishments.
16,377	23,240	2,81,702	65,838	33,985	77,37,333	18,35,652	16,76,441	1,12,49,931	Grand Total of Expenditure.
...	...	44,333	...	...	67,91,227	7,78,267	6,52,715	82,22,209	Surplus.
6,641	3,904	...	63,686	28,951	...	...	...	...	Deficit.

Revenue, Expenditure and Surplus of the Forest Department

(I) REVE

Provinces.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.
	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial *	16,716	17,218	18,637	27,407	20,722	32,907	26,571	11,709	5,188	4,817	4,017	3,759	6,389
Bengal	4,15,027	4,19,124	5,01,190	6,34,734	6,59,909	6,98,231	5,71,152	5,97,132	6,55,631	6,57,791	6,76,907	7,67,715	7,27,262
United Provinces	11,26,752	10,20,966	9,42,228	10,06,004	10,13,103	16,11,333	15,72,349	14,64,196	15,73,356	12,41,151	14,02,802	17,14,159	16,37,879
Punjab	5,00,619	6,19,819	6,71,678	6,68,303	7,56,209	9,10,177	7,19,251	8,50,115	11,27,277	7,86,926	10,15,768	9,81,713	8,91,120
Burma (Lower)	11,37,267	11,30,193	15,16,513	22,21,504	25,09,895	25,19,275	16,70,982	20,23,533	19,36,267	22,13,527	26,07,305	21,34,716	26,17,671
Burma (Upper)	...	...	...	...	...	...	...	...	1,08,771	2,95,776	15,79,922	14,06,070	16,11,277
Central Provinces	8,52,892	10,06,771	8,59,139	11,72,834	9,77,641	9,91,786	10,27,202	10,36,894	9,36,190	10,59,369	11,81,105	11,56,121	12,13,164
Assam	1,61,779	1,64,335	1,83,977	1,65,654	2,18,501	2,11,115	1,80,411	1,96,545	2,12,011	2,57,312	3,03,852	3,79,198	3,26,793
Coorg	52,609	1,01,786	97,852	1,03,364	1,30,022	87,822	1,13,135	84,356	90,291	1,22,923	1,30,483	92,783	1,35,561
North-West Frontier Province	...	...	...	...	...	...	...	9,697	11,274	14,293	13,571	11,582	15,266
Ajmer	1,211	1,651	1,124	1,055	7,126	3,198	16,156	2,091	241	40	315	220	2,104
Forest Surveys (Imperial)	63	35	472	...	315	35	231	202	241	40	315	220	2,104
Forest School	...	...	...	...	...	...	72	273	315	777	319	1,230	1,181
Andamans	5,561	2,437	27,734	43,107	29,853	21,762	42,113	23,941	31,370	8,04,002	1,05,075	1,02,195	1,55,309
Total	17,71,206	15,12,891	18,45,269	61,39,121	61,54,309	70,85,359	59,41,201	63,09,965	67,27,305	68,19,681	91,19,626	1,01,53,811	93,80,675
Madras	6,05,733	6,36,108	7,36,880	6,60,908	9,06,442	9,53,704	11,05,916	11,98,520	12,16,911	13,71,920	15,12,606	15,57,022	17,26,469
Bombay	11,81,894	15,21,712	15,22,807	18,22,117	20,50,353	25,08,100	27,74,812	33,06,286	30,32,676	30,32,577	28,98,190	31,37,695	32,82,220
Total (British India)	69,89,830	67,69,771	71,05,516	87,71,446	94,11,100	1,05,31,912	98,85,929	1,08,63,903	1,10,56,183	1,12,27,182	1,34,84,808	1,48,19,133	1,44,61,302
Berar	2,85,209	3,07,560	2,66,553	2,83,511	2,92,011	2,68,218	2,97,183	3,09,851	3,25,264	3,06,117	3,07,977	3,19,511	3,37,100
Forest Surveys (Berar)	...	...	...	...	...	...	531	631	651	296	...	...	...
Baluchistan	...	...	14,376	15,616	5,633	4,752	6,065	14,962	14,981	14,063	5,663	13,897	15,728
Grand Total	63,18,591	70,77,271	73,37,132	90,26,273	97,15,153	1,08,51,332	1,01,90,170	1,12,05,315	1,13,96,685	1,16,18,283	1,38,98,151	1,53,03,572	1,48,67,135

The figures in this statement have been for
* Includes certain forest receipts, and ex
† Amalgamated with the Central Provinces.

(II) EXPEN

Imperial *	63,955	73,340	65,231	77,615	87,267	96,295	95,305	83,215	85,239	73,523	85,199	81,311	81,415
Bengal	3,33,675	3,75,748	3,35,381	3,91,612	3,82,183	3,87,317	4,11,915	3,76,391	4,22,761	3,80,261	3,76,270	3,90,250	4,11,034
United Provinces	8,09,977	7,86,591	6,79,521	9,16,212	8,33,625	10,41,535	10,20,101	9,71,519	9,19,360	8,30,718	8,41,511	9,63,151	9,19,195
Punjab	5,23,561	5,82,676	4,93,358	5,16,2 9	5,60,750	6,43,118	5,58,070	6,75,183	7,16,510	6,77,912	5,93,835	6,45,155	6,53,011
Burma (Lower)	7,18,402	7,52,190	7,12,563	11,50,224	11,12,23,955	12,17,821	12,12,233	11,50,952	10,75,230	10,32,091	12,34,944	13,12,311	10,85,474
Burma (Upper)	...	...	...	...	...	...	...	...	2,138	1,21,152	7,85,129	6,70,800	5,02,315
Central Provinces	3,33,758	5,22,371	4,95,512	4,97,813	4,72,247	4,26,058	4,36,824	4,45,437	4,59,232	5,23,792	5,82,044	5,95,419	6,24,351
Assam	1,20,625	1,32,823	1,12,725	1,67,361	1,71,823	1,99,562	1,97,679	2,11,191	2,12,267	2,24,332	2,01,075	2,37,123	2,34,832
Coorg	31,829	55,168	55,197	59,795	61,770	73,023	76,961	65,540	74,083	72,859	80,175	72,129	65,818
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	23,419	13,259	12,493	13,951	11,284	11,571	16,316	16,459	20,744	18,527	15,676	12,791	12,728
Forest Surveys (Imperial)	80,325	46,578	40,135	42,889	41,565	30,980	19,221	19,199	22,345	22,886	22,164	21,153	21,321
Forest School	...	...	...	...	...	...	22,568	22,242	20,831	23,129	22,564	9,916	20,191
Andamans	...	1,477	2,169	2,305	1,810	12,161	22,260	37,035	25,764	62,679	57,793	91,975	1,30,652
Total	30,82,949	29,72,621	30,37,824	38,25,871	38,01,749	41,67,252	41,50,453	40,79,137	41,14,513	41,21,533	50,04,811	48,79,615	47,47,954
Madras	1,95,915	5,18,527	5,19,270	6,03,119	6,15,262	7,85,733	8,36,505	9,37,972	11,52,129	11,29,232	12,24,791	11,61,232	12,16,913
Bombay	10,04,923	10,79,989	11,67,347	11,63,184	12,73,770	15,61,172	12,28,723	13,33,168	13,52,916	13,51,035	16,83,962	17,70,691	18,09,257
Total (British India)	45,83,786	47,01,207	47,24,441	56,08,171	57,25,532	65,18,157	62,25,791	63,50,276	72,20,580	72,01,750	79,19,000	78,11,513	78,61,751
Berar	1,07,350	1,10,506	1,23,958	1,32,935	1,55,051	1,35,779	1,52,619	1,58,212	1,71,701	1,75,424	1,78,212	1,76,319	1,85,221
Forest Surveys (Berar)	...	...	...	...	...	15,043	31,981	32,949	34,402	23,955	23,955	23,955	...
Baluchistan	...	...	16,416	17,682	11,932	1,911	13,296	15,733	17,853	17,783	15,991	17,962	29,450
Grand Total	46,91,136	48,11,713	48,69,815	57,79,138	58,92,478	67,06,890	70,26,519	70,75,551	74,55,592	73,48,366	81,29,761	80,12,518	80,53,125

* Includes pay of Inspector-General of Forests,
† Amalgamated with the Central Provinces.

(III) SUR

Imperial *	−47,240	−56,596	−46,401	−50,228	−56,545	−65,359	−69,032	−73,506	−82,118	−73,779	−82,182	−76,552	−79,049
Bengal	77,352	1,43,776	2,29,809	2,39,127	3,11,726	3,09,524	1,59,237	2,20,833	2,32,870	2,77,530	3,00,637	3,77,465	3,13,228
United Provinces	3,16,775	2,34,375	2,62,707	1,89,852	1,79,478	5,69,798	5,52,248	4,92,676	6,53,996	4,10,433	5,61,291	7,51,008	7,18,684
Punjab	−22,935	1,07,143	1,78,320	1,52,039	2,05,459	2,67,059	1,61,182	1,74,932	4,10,767	1,09,014	4,51,933	3,75,558	2,38,109
Burma (Lower)	4,19,166	3,78,003	8,04,015	10,71,280	13,96,940	12,01,454	4,58,749	8,72,581	8,60,937	11,81,436	13,72,361	8,01,877	15,32,197
Burma (Upper)	...	...	...	...	...	...	...	...	1,06,633	1,74,624	7,94,793	7,35,270	11,09,962
Central Provinces	4,59,134	4,84,150	3,63,627	6,75,021	5,05,400	5,58,711	5,31,381	5,91,462	4,59,117	5,40,449	5,11,708	4,59,736	4,71,507
Assam	35,791	31,306	26,272	962	67,732	11,333	−17,268	−14,834	−216	10,420	94,977	1,22,393	47,911
Coorg	17,191	46,621	41,370	40,553	13,252	12,799	36,222	22,695	15,208	50,399	50,293	20,333	69,749
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	−22,207	−11,899	−11,369	−9,889	−4,158	−8,376	−5,890	−6,772	−9,470	−1,901	−2,102	−1,109	2,516
Forest Surveys (Imperial)	−80,262	−45,510	−40,043	−42,889	−41,247	−30,901	−19,569	−19,242	−22,103	−22,863	−21,849	−20,953	−22,220
Forest School	...	...	...	...	...	...	−22,496	−23,205	−30,119	−22,352	−22,564	−28,804	−21,007
Andamans	5,561	−1,040	25,571	40,101	29,018	12,601	−547	−13,094	5,607	41,383	48,780	67,220	25,274
Total	11,88,250	15,25,203	18,09,015	23,03,250	26,49,505	29,17,156	17,29,641	22,75,828	26,63,353	26,83,152	41,14,766	32,74,196	46,72,720
Madras	1,10,573	77,641	2,17,589	2,03,189	2,91,000	1,66,971	2,69,411	2,60,548	99,789	2,41,703	2,51,212	3,96,892	5,10,195
Bombay	1,76,971	5,17,823	3,55,169	4,53,336	8,71,183	9,38,023	9,96,119	15,26,845	10,79,766	10,83,572	11,56,228	13,67,005	14,16,233
Total (British India)	14,75,794	20,69,567	23,82,115	30,05,675	37,22,223	40,23,255	30,09,171	40,13,331	38,36,913	40,22,432	55,65,206	70,37,593	66,99,513
Berar	1,81,341	1,96,994	1,42,595	80,576	1,36,960	1,31,439	1,44,636	1,50,639	1,53,562	1,30,693	1,29,763	1,43,192	1,51,879
Forest Surveys (Berar)	...	...	...	...	...	15,043	−31,670	−32,309	−34,921	−23,659	−23,955	−6,161	...
Baluchistan	...	...	−2,010	931	−6,921	−12,119	−7,177	−830	−3,750	−3,690	−10,326	−1,055	−13,726
Grand Total	16,57,135	22,47,561	25,17,060	32,47,133	38,52,275	41,47,902	31,63,960	41,30,791	39,52,894	41,99,922	56,61,090	72,91,051	68,01,010

* Includes pay of Inspector-General of Forests, certain home
† Amalgamated with the Central Provinces.

DIX XXIII.

throughout India during the 25 years from 1878-79 to 1902-03.

NUE.

[*Vide* paragraphs 36, 37 and 39.]

1893-94.	1893-93.	1892-94.	1891-95.	1895-93.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.	1901-03.	Provinces.
R	R	R	R	R	R	R	R	R	R	R	R	
6,638	5,240	2,630	4,980	2,650	4,100	19,130	17,540	6,060	2,160	3,163	3,650	Imperial.*
7,89,562	7,41,660	8,61,640	7,95,620	9,18,710	13,20,850	11,89,200	9,77,380	11,25,500	12,13,330	13,07,227	12,58,217	Bengal.
17,21,514	16,52,510	17,60,850	16,58,250	16,01,360	17,11,820	15,65,670	15,58,040	16,11,710	15,65,165	17,12,500	20,23,324	United Provinces.
10,20,671	8,18,630	9,13,300	10,22,130	10,16,500	11,07,720	10,68,120	11,73,430	15,00,770	13,50,812	15,67,655	15,85,698	Punjab.
29,56,111	24,73,370	31,09,140	27,71,220	29,11,550	31,18,720	30,65,200	42,22,960	43,05,630	45,17,853	36,65,452	37,22,027	Burma (Lower).
23,27,300	20,76,620	22,30,750	21,67,250	27,31,220	25,03,680	24,29,090	41,27,930	35,68,830	35,11,081	22,67,115	30,16,151	Burma (Upper).
2,59,900	12,20,950	11,31,180	10,03,830	9,83,540	7,13,250	7,60,650	9,31,100	8,19,250	9,61,032	11,15,722	16,21,122	Central Provinces.
3,15,152	1,82,530	1,85,500	1,73,052	1,85,940	1,85,440	2,51,122	2,98,180	3,51,100	3,48,521	3,17,963	3,80,200	Assam.
1,82,897	1,80,680	1,72,170	1,56,600	1,55,220	80,000	1,30,710	1,35,990	1,62,110	1,57,306	1,20,212	1,50,727	Coorg.
										12,04,27	1,20,122	North-West Frontier Province.
19,799	14,800	21,620	12,810	15,610	12,320	15,540	14,620	19,270	20,616	6,253	6,726	Ajmer.
297	320	210	27	310	190	240	250	220	227	177	3,011	Forest Surveys (Imperial).
1,758	1,350	1,922	2,700	1,710	2,150	2,870	2,360	3,215	3,670	2,445	2,742	Forest School.
2,22,382	2,60,150	1,11,700	1,15,520	1,32,120	3,62,700	1,33,710	2,29,160	2,60,615	2,77,890	2,66,810	2,26,035	Andamans.
90,05,331	1,10,47,530	1,11,67,960	1,05,55,170	1,03,42,720	1,19,87,190	1,26,25,950	1,11,78,070	1,27,96,230	1,11,19,295	1,24,22,451	1,15,00,223	Total.
15,04,785	13,77,610	14,17,180	14,91,090	21,10,570	23,60,350	21,36,190	21,19,520	23,62,260	22,80,170	20,17,130	20,13,819	Madras.
32,58,619	32,19,550	27,91,350	31,50,050	33,36,670	30,43,130	29,16,660	24,50,150	24,15,200	29,61,525	23,87,729	23,29,156	Bombay.
1,38,85,715	1,56,91,290	1,72,03,190	1,62,20,180	1,58,50,190	1,73,23,230	1,73,80,100	1,45,83,260	1,65,11,320	1,91,50,985	1,72,35,610	1,94,52,201	Total (British India).
5,31,153	5,32,800	5,42,800	5,72,600	5,98,360	5,17,620	5,00,350	5,36,810	5,78,250	5,62,552	1,57,333	?	Berar.
22,600	20,030	22,030	16,300	14,900	15,460	15,610	14,920	17,060	15,956	11,712	19,335	Forest Surveys (Berar).
												Baluchistan.
1,56,17,910	1,63,61,340	1,77,13,020	1,67,83,280	1,70,99,350	1,78,56,580	1,77,96,160	1,50,38,520	1,70,09,610	1,97,30,493	1,74,23,715	1,94,71,540	Grand Total.

* ributed by the Comptroller and Auditor-General.
distributable and petty local items.

DITURE.

69,733	1,07,279	89,940	91,850	89,190	78,960	81,200	25,160	96,550	83,576	79,435	65,917	Imperial.*
4,22,300	3,81,630	4,04,040	3,91,290	4,05,600	4,30,340	4,55,120	5,45,210	5,78,805	6,37,180	6,37,181	6,31,061	Bengal.
9,58,211	9,22,510	9,63,160	9,35,310	9,42,200	9,05,310	9,17,850	9,17,800	9,42,380	9,63,135	10,06,735	10,13,393	United Provinces.
6,39,775	6,55,220	6,36,430	7,22,120	6,78,620	7,23,300	7,71,910	8,55,340	12,41,160	8,87,313	9,33,335	9,60,095	Punjab.
12,63,121	12,63,257	12,11,640	13,18,430	13,55,750	15,05,290	14,84,110	15,63,530	15,86,180	15,25,765	11,25,180	15,15,753	Burma (Lower).
2,78,859	4,11,756	5,20,260	5,75,800	6,23,530	7,92,500	8,55,870	8,45,970	11,29,961	12,59,021	13,39,410	13,39,510	Burma (Upper).
3,03,915	3,35,480	3,72,120	3,26,020	3,52,340	3,10,300	3,25,140	3,71,220	4,61,110	3,30,783	3,75,217	12,57,731	Central Provinces.
2,67,502	2,68,028	2,54,220	2,72,980	2,85,140	2,82,080	2,83,620	3,27,240	3,47,140	3,47,114	3,27,115	327 192	Assam.
85,800	78,000	76,650	85,180	87,530	72,530	87,020	98,100	71,120	70,503	81,457		Coorg.
										19,540	21,031	North-West Frontier Province.
13,786	15,000	15,907	14,900	15,720	22,000	14,670	16,300	15,310	16,782	15,327	16,177	Ajmer.
16,882	22,160	21,900	23,140	22,650	21,970	23,450	23,920	23,920	23,911	24,200	23,981	Forest Surveys (Imperial).
54,347	57,410	57,530	58,580	67,571	67,230	60,595	65,470	73,540	71,232	76,253	65,218	Forest School.
1,29,009	2,21,210	2,16,550	1,27,760	1,04,650	3,16,600	2,17,310	1,33,960	1,50,910	1,50,172	2,09,662	2,81,702	Andamans.
52,09,008	53,85,020	55,89,010	56,26,470	56,41,230	62,20,650	62,78,310	63,34,170	69,89,620	67,71,673	70,65,987	77,14,095	Total.
13,23,254	13,30,360	17,12,770	17,08,350	17,15,640	15,21,400	15,72,150	15,91,840	16,53,530	17,15,931	17,09,553	18,25,452	Madras.
19,31,157	19,01,970	20,71,310	20,51,920	19,54,330	19,02,800	20,12,190	19,33,250	21,23,130	21,08,581	17,19,585	16,75,611	Bombay.
81,63,519	86,21,350	90,22,720	90,10,710	90,45,330	97,73,510	97,21,210	97,63,000	1,07,61,630	1,06,95,685	1,04,98,225	1,12,25,091	Total (British India).
1,98,309	2,29,220	2,54,25	2,91,610	2,45,540	2,41,870	2,41,050	2,73,040	2,31,360	2,15,103	2,25,687	?	Berar.
30,497	55,620	63,330	89,910	41,710	25,770	27,330	27,760	23,630	23,251	21,680	23,210	Forest Surveys (Berar).
												Baluchistan.
86,94,187	89,06,220	93,40,509	93,72,230	93,32,580	1,00,45,150	1,04,95,730	1,03,33,993	1,10,21,980	1,11,03,910	1,07,45,338	1,12,49,331	Grand Total.

certain license charges, and undistributable and petty local items.

PLUS.

−59,100	−1,07,039	72,160	−79,970	−77,720	−71,860	−65,170	−87,920	−90,420	−81,115	−76,055	−61,358	Imperial.*
2,66,862	2,60,270	3,97,580	3,96,220	4,72,640	6,80,190	5,31,960	4,25,570	5,37,700	6,67,358	6,37,705	6,18,223	Bengal.
7,63,303	7,21,000	7,91,940	6,58,180	5,58,760	4,05,820	4,68,520	5,86,050	6,72,380	5,02,021	7,05,769	10,11,326	United Provinces.
3,79,796	1,56,300	2,76,570	3,18,710	3,56,080	3,84,190	2,95,530	6,19,080	1,89,310	4,63,196	5,09,223	6,25,313	Punjab.
17,22,990	12,09,470	18,79,710	16,96,970	16,55,800	22,16,960	20,79,090	28,99,030	28,03,790	30,16,597	21,60,017	21,66,413	Burma (Lower).
20,48,441	16,34,620	17,71,160	16,22,820	12,05,150	19,35,150	22,36,960	32,31,340	25,18,850	23,31,130	10,87,564	16,79,911	Burma (Upper).
1,31,593	2,78,450	2,02,250	1,17,720	1,14,000	−1,11,570	−1,41,220	−1,22,770	−2,22,180	−2,220	1,40,540	1,77,110	Central Provinces.
5,55,665	5,79,156	5,20,760	5,47,780	5,46,190	4,51,150	5,25,350	5,92,220	2,88,950	2,96,545	3,83,851	2,52,801	Assam.
68,100	1,42,020	2,07,810	1,53,080	1,38,890	1,21,970	1,13,560	75,970	88,190	96,020	1,03,451	1,01,295	Coorg.
−56,057	3,07,550	85,900	56,300	45,170						27,320	1,01,250	North-West Frontier Province.
										−5,988	57,039	Ajmer.
3,813	−130	−1,280	−2,050	−90	−9,640	270	−1,280	−8,050	−6,180	−3,052	−5,611	Forest Surveys (Imperial).
26,022	−21,640	−27,676	−23,260	−29,490	+31,580	−22,070	−31,660	−31,560	−33,260	−33,250	−30,561	Forest School.
−12,559	−33,120	−63,540	−67,190	−65,640	+61,550	−56,050	−67,090	−67,210	−67,511	−72,715	−67,065	Andamans.
97,195	1,79,280	1,97,210	−2,250	30,100	45,770	1,86,970	94,060	1,19,660	1,37,718	62,236	91,133	
45,36,713	46,61,150	58,79,950	59,28,650	53,81,140	58,17,490	53,18,670	78,43,960	68,17,170	77,27,615	53,55,461	67,85,121	Total.
3,09,562	2,15,220	5,51,110	5,97,080	6,61,000	7,60,830	5,44,560	5,15,850	6,48,220	6,21,775	3,37,676	4,12,057	Madras.
13,53,292	12,64,580	17,22,180	16,32,180	15,78,220	10,63,550	5,13,470	3,33,000	2,95,770	−5,92,981	6,00,849	6,30,715	Bombay.
64,16,697	72,72,910	81,66,770	72,18,410	75,14,720	73,48,720	71,55,750	68,15,670	77,52,700	85,55,300	63,49,289	82,06,113	Total (British India).
3,12,815	2,01,700	2,22,550	2,21,100	2,18,230	2,75,950	1,56,960	2,01,170	2,43,450	67,442	1,37,708	?	Berar.
												Forest Surveys (Berar).
−9,322	−36,500	−43,000	−21,640	−26,810	−14,310	−12,220	−12,840	−11,020	12,220	−5,763	−3,501	Baluchistan.
67,22,322	74,38,110	83,72,320	74,15,560	77,05,720	76,11,360	72,99,760	70,01,600	79,84,930	86,10,453	79,77,327	82,22,229	Grand Total.

harges and undistributable and petty local items.

APPENDIX XXIV.

[*Vide* paragraph 42.]

Exports of Forest Produce.

Articles of Forest produce.	Quantity, in tons of 20 cwt. in the case of teak, cubic tons.		Valuation at Port of shipment in 1902-03.	
	Average of five years, 1897-98 to 1901-02.	In 1902-03.	Total.	Per ton.
			R	R
Caoutchouc	318	52	1,41,155	2,715
Lac — Button	1,608	1,790	22,40,522	1,303
Lac — Shell	8,475	9,789	1,57,34,373	1,607
Lac — Stick and other kinds	152	371	4,32,478	1,166
Lac-dye	2 cwt.	...	...	...
Sandal, ebony and other ornamental woods	Information	not available	9,90,629	...
Cutch and gambier	4,548	3,515	13,42,606	382
Myrabolams	46,811	57,882	37,72,255	65
Teak	74,420	57,600	68,67,879	119
Cardamoms	66	135	4,16,242	3,083
Total in 1902-03	...	...	3,20,38,639	...
„ „ 1901-02	...	...	2,32,06,719	...
Increase in	...	...	88,31,920	...

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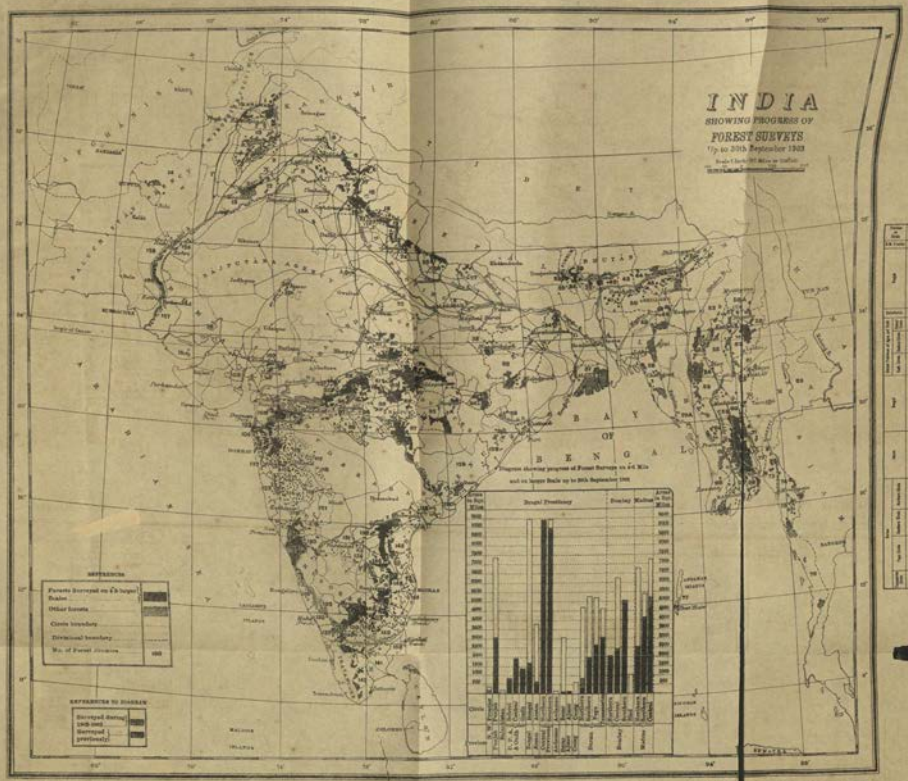

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REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1903-1904

WITH A QUINQUENNIAL SUMMARY

BY

S. EARDLEY-WILMOT,

INSPECTOR GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

IV - 6

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2. Map of India showing progress of Forest Surveys and Working-Plans.

REVIEW

OF

FOREST ADMINISTRATION IN BRITISH INDIA

FOR THE YEAR

1903-04.

INTRODUCTION.

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1899-1900 TO 1903-1904.

In conformity with the usual practice the following summary of the progress made in Forest Administration during the last quinquennium is prefixed to the Annual Review for the year 1903-04.

Administrative control.

2. The Department of Revenue and Agriculture to the Government of India continued to administer the Forest Branch of the General Administration, and during the period under review the Honourable Members of Council in office were Sir Charles Rivaz, K.C.S.I., from 9th April 1898 to 4th March 1902 (except for a period of leave from 4th December 1899 to 5th April 1900, when Sir Denzil Ibbetson, K.C.S.I., officiated as Honourable Member); from the 5th March 1902 to the close of the quinquennium the Honourable Sir Denzil Ibbetson, K.C.S.I., held office.

The Secretaries to the Government of India in the Department of Revenue and Agriculture were Mr. T. W. Holderness, C.S.I., from 3rd July 1898 to 5th May 1899; Mr. M. Finucane, C.S.I., from 6th May 1899 to 7th August 1899; Mr. Holderness from 8th August 1899 to 31st March 1901; Mr. J. B. Fuller, C.I.E., from 1st April 1901 to 11th April 1902; Mr. R. G. Hardy, C.I.E., from 12th April 1902 to 23rd August 1902; Mr. J. O. Miller, C.S.I., from 24th August 1902 to 14th December 1903; and Mr. J. Wilson, C.S.I., from 15th December 1903 to the close of the period under review.

Mr. B. Ribbentrop, C.I.E., continued to perform the duties of Inspector General of Forests to the Government of India till his retirement on 31st October 1900, when Mr. H. C. Hill was appointed. Mr. R. C. Wroughton officiated as Inspector General from 20th April 1902 and was on Mr. Hill's death confirmed in the appointment on 8th November 1902. He was absent on furlough from 4th February 1903, when Mr. S. Eardley-Wilmot was appointed to officiate as Inspector General and continued to hold the appointment at the close of the period under review. Mr. F. B. Bryant occupied the post of Assistant Inspector General of Forests until 21st February 1900, and Mr. J. H. Lace up to 16th February 1902. Mr. L. Mercer was then appointed. and on the 25th February 1904 he was relieved by Mr. M. Hill. Mr. G. S. Hart officiated for three months from 14th September 1897 to 13th December 1897.

General principles.

3. The administration of the State forests during the period under consideration has been in accordance with the general principles enunciated in the

Resolution issued by the Government of India in October 1894, where it was laid down that "the sole object with which State forests are administered is the public benefit."

Forest Legislation.

4. During the period the progress of Forest legislation has been as follows:—The Indian Forest Act was amended in 1901 so as to give Local Governments power to deal with cases of incendiarism in protected forests, by suspending rights to pasture and forest produce in such forests. The Burma Forest Law of 1902 was introduced in place of the two separate Acts previously in force for Upper and Lower Burma. An Act was passed by the Punjab Government in 1899 to deal with the damage caused to agriculture by the erosion and sand drift of the torrent beds of the Siwaliks, which empowered the Government to extinguish on payment of compensation certain rights to pasture and forest produce, the existence and exercise of which were incompatible with the measures necessary to afforest the hills. Rules under Forest Acts were issued in many provinces.

Kheddahs.

5. In view of the reduced requirements of the military authorities for elephants and of the need for maintaining a large supply of these animals for forest work in Burma, the Kheddah Department was transferred from the Military Department to the control of the Burma Government in 1902.

Organization.

6. The following changes in the organization of the Forest Department took place:—In consequence of the demand for officers for foreign service the number of extra special posts allotted for the purpose in the Imperial Service was raised from three to five in 1901 and to nine in 1904.

Progress was made in the transfer of appointments from the Imperial to the Provincial Service; the Subordinate Service has been reorganized in Burma, and a complete revision of the office establishments throughout India was sanctioned in 1901.

Changes in area.

7. There has been a considerable increase in the areas of all classes of forest lands under the control of the Department. At the close of the year 1898-99 the areas were as follows:—

	Square miles.
Reserved and leased forests	84,148
Protected „ „	8,483
Unclassed State „ „	29,565

or a total of 1,22,196 square miles, the proportion of forests to the whole area of all the provinces being 12·88 per cent. At the close of the quinquennium under review the areas were:—

	Square miles.
Reserved and leased forests	91,567
Protected „ „	9,865
Unclassed State „ „	131,269

or a total of 232,701 square miles, the proportion of forests to the total area of all the provinces being 24 per cent.

The marked increase in the area of unclassed forests is almost entirely due to additions in Burma.

Forest Settlements.

8. Good progress was made in Forest Settlements, the areas finally settled at the end of 1898-99 being 81,869 square miles, and at the close of 1903-04 96,466 square miles. The most marked increase occurred in Burma, where following on the annexation of Upper Burma large areas have been selected to form permanent reserves.

9. The areas for which working-plans had been compiled and sanctioned at the end of 1898-99 were in Bengal 20,348 square miles, in Madras 139 square miles, and in Bombay 1,319 square miles, or a total of 21,806 square miles. At the close of 1903-04 the areas amounted in Bengal to 24,407 square miles, in Madras 5,103 square miles, and in Bombay 4,170 square miles, or a total of 33,680 square miles. This increase of 11,874 square miles or approximately 54 per cent. is very satisfactory. **Working-Plans.**

10. In 1899 the Forest Survey Branch was amalgamated with the Survey of India, and in 1904 all forest surveys throughout India were placed under the Superintendent of Forest Surveys and the general direction of the branch transferred to the Surveyor General. **Forest Surveys**

During the last five years forest surveys have made satisfactory progress, 22,309 square miles of forests having been surveyed on the 4 inch and larger scales: of the total area, 6,353 square miles were in Madras, 3,581 in Bombay, and 12,375 in the Bengal Presidency.

In the Punjab forest surveys in Chamba and Kangra have been completed, and the forests of the Jubal and Taroch States have also been surveyed. In the North-West Frontier Province the forests of the Khagan and Siran ranges in Hazara have been surveyed.

In the United Provinces surveys have, with a few unimportant exceptions, been completed, and the same is the case in the Singhbhum, Darjeeling, Kurseong, and Tista forests of Bengal. Surveys in the Northern and Southern Circles of the Central Provinces have been completed. In Assam the survey of 513 square miles of forests is in progress. In Burma the large continuous block of forests along the Pegu Yoma range has been completely surveyed, and surveys have been commenced in the Upper Chindwin and Irrawaddy valleys. In Madras and Bombay steady progress has also been made.

Forest surveys are now in most localities in advance of working-plans, and it is hoped that by 1908 most of the immediate requirements of the Forest Department, except perhaps in Madras, will have been met.

11. The important work of demarcation of forest boundaries has not been overlooked. The total length of artificially marked boundaries at the close of the year 1898-99 amounted to 100,264 miles; at the end of 1903-04 the length of boundaries demarcated amounted to 121,501 miles. **Demarcation.**

12. The average *annual* expenditure on roads, buildings, and other works during the quinquennial period 1894-95 to 1898-99 amounted to ₹4,17,000, whilst during the five years under review it amounted to nearly 5½ lakhs. The increased expenditure was principally in the Bengal Presidency and has been justified by the increased revenue and value of the forest. To the knowledge of this fact is perhaps due the increased outlay in 1903-04, when nearly ₹5,00,000 were expended in this Presidency alone under these heads. **Roads and Buildings.**

13. There was a considerable increase in the number of forest offences. The average *annual* number of offences during the period 1894-95 to 1898-99 was 40,520, whilst for the period 1899-1900 to 1903-1904 it rose to 55,320. Offences of injury to forests by fire increased 32 per cent., the increase being most marked in the Bombay Presidency. Cases of unauthorized fellings increased 42 per cent., most of the increase being in Madras. Cases of grazing without permission increased 37 per cent.; of this Madras accounted for 27 per cent. **Forest crime.**

The large increase in the areas of reserved and protected forests cannot be taken as entirely explanatory of these figures, nor yet the increase of the

forest staff or the increased area under systematic working; the chief cause is probably to be found in the fact that part of the five years' period was in some provinces one of hardship to the peasantry, and that trespass and petty thefts were in consequence unusually frequent. There is nothing to show that in times of normal prosperity forest crime is on the increase.

Fire-Protection.

14. The average area under systematic fire-protection during the preceding quinquennial period amounted to 31,285 square miles, the average of failures being 7 per cent.; the area was increased during the period under review to an average of 35,236 square miles, the failures amounting to 8 per cent. The increases in areas brought under protection occurred principally in Burma, the Central Provinces, and the United Provinces.

Yield and Outturn.

15. The following statement shows the average annual outturn of the forests for the two periods:—

		Timber and Fuel. Cubic feet.	Bamboos. No.	Minor produce. R
1894-95 to 1898-99	Bengal	158,165,000	157,609,000	25,75,000
	Madras	15,376,000	29,953,000	9,78,000
	Bombay	53,351,000	7,916,000	11,30,000
	TOTAL	226,892,000	195,478,000	46,83,000
1899-1900 to 1903-04	Bengal	173,687,000	175,712,000	28,54,000
	Madras	19,234,000	33,960,000	11,98,000
	Bombay	43,095,000	4,833,000	7,04,000
	TOTAL	236,016,000	214,505,000	47,56,000

The average outturn of timber and fuel increased 9 per cent. in the Bengal Presidency, and 25 per cent. in the Madras Presidency; it decreased 19 per cent. in the Bombay Presidency.

The extraction of bamboos showed an increase of 11 per cent. and 13 per cent. from Bengal and Madras, respectively, and a decrease of 38 per cent. in Bombay. The revenue from minor forest produce increased 11 per cent. in Bengal and 22 per cent. in Madras, and decreased 38 per cent. in Bombay.

Financial Results.

16. The average annual financial results for the two periods are shown below:—

		Revenue. R	Expenditure. R	Surplus. R
1894-95 to 1898-99	Bengal	1,25,59,000	63,08,000	62,51,000
	Madras	21,11,000	15,07,000	6,04,000
	Bombay	30,46,000	19,81,000	10,65,000
	TOTAL	1,77,16,000	97,96,000	79,20,000
1899-1900 to 1903-04	Bengal	1,46,00,000	75,94,000	70,06,000
	Madras	24,91,000	17,33,000	7,58,000
	Bombay	25,67,000	19,42,000	6,25,000
	TOTAL	1,96,58,000	1,12,69,000	83,89,000

The average revenue in Bengal and Madras increased 16 per cent. and 18 per cent., respectively; it decreased 16 per cent. in Bombay.

The average surplus increased 12 per cent. and 25 per cent. in Bengal and Madras, respectively, and decreased 41 per cent. in Bombay.

The revenues for the period 1899-1900 to 1903-04 were to some extent adversely affected by the famine from which many provinces suffered, and from the effects of which they are now recovering, but the figures given above seem to point to the fact that in two Presidencies increased expenditure has been followed by a larger yield and better financial results.

Forest Education.

17. The following information regarding the Imperial Forest School will be of interest. The institution was opened in 1879 and the statistics given include the period up to the end of 1903-04 :—

(i) The capital expenditure on purchase, extension, and up-keep of buildings amounted to R1,48,336. Recurring expenditure in salaries, allowances, instruments, apparatus, books, etc., to R11,27,565, while Local Governments, Colonies, and Native States expended R6,26,236 in salaries, stipends, and travelling allowances for their students.

(ii) The number of students who passed out of the School was 673, of whom 418 are now in Government service, 135 in that of Native States, etc., while the whereabouts of 120 cannot be ascertained. It may be taken that 91 of these entered Government service and that 29 went to Native States.

(iii) The average cost of education per head of passed students amounted therefore to R2,606 without taking into consideration the cost of buildings and sites which were acquired at a very cheap rate and probably represent a higher value than the cost incurred.

(iv) The following statements show the sums charged to Provincial and States' budgets, and from them can be judged the local demand for trained foresters.

Expenditure charged to Provincial Budgets and Native States since the establishment of the Forest School to the end of 1903-04.

I.—British India.

Province or Circle.	Total expenditure to 30th June 1904.
	R
Bengal	38,921
Assam	27,218
The United Provinces	65,127
The Punjab	54,451
The Central Provinces	98,115
Berar	12,285
Coorg	3,366
Burma	46,893
Madras	1,55,182
Bombay	2,605
Ajmer	664
Total	5,04,827

Province or Circle.	Total expenditure to 30th June 1904. ₹
I.—British India—Brought forward	5,04,827
II.—Colonies and Native States.	
Ceylon	20,251
Federated Malay States	182
Siam	20,230
Mysore	17,497
Baroda	3,984
Jaipur	6,811
Patiala	4,677
Rewah	3,107
Alwar	925
Partabgarh	1,599
Sirmur	776
Jubal	729
Bahawalpur	800
Kohlapur	1,664
Hyderabad	10,889
Travancore	4,746
Jodhpur	3,807
Kashmir	8,712
Tehri	878
Cochin	5,087
Kotah	717
Malkopur	1,172
Mourbhanj	903
Barwani	416
Bharatpur	423
Mandi	427
Total	1,21,409
GRAND TOTAL	6,26,236

The average cost per student to Provincial Governments amounted to ₹991 and to Colonies and Native States to ₹740, while the Government of India paid ₹1,675 per head in free education.

A consideration of these figures may lead to the conclusion that a system of education whereby the whole-time services of a highly-trained and expensive staff is devoted to the education of forest subordinates may, as a commencement, have been necessary, but that its continuance at this period of forest administration in India is unnecessarily expensive, and that the cost of forest education to the Government of India might be very considerably reduced by utilizing the services of the principal professors in research for the benefit of the Department, while entrusting the routine work of instruction to officers of special attainments in the Provincial Service, of whom many are now available.

18. Up to the year 1902 the training of candidates for the Provincial and Subordinate Forest Services of the Bombay Presidency had been carried out at the College of Science, Poona. In that year, however, after a careful consideration of the question it was decided that the Imperial Forest School, Debra Dun, should in future be utilized for the training of candidates for the Upper Subordinate Service of the Bombay Forest Department, and thus, with the exception of Burma, this institution now provides a higher forest education for the whole of the Indian Empire.

19. Although the Imperial Forest School at Dehra Dun is open to students from all parts of India, serious drawbacks attended the deputation of Burma and Karen subordinates, and as it was highly desirable that the subordinate executive staff in Burma should receive some regular and scientific training, it was decided with the sanction of the Secretary of State that a Forest School should be established in that Province. Accordingly in 1899 a school was opened at Tharrawaddy to provide for the training annually of eight subordinates, the course was fixed at 18 months and one Instructor was provided. Experience soon showed that considerable modifications were desirable. In 1901 it was decided to enlarge the scope of the school; an Assistant Instructor was added; the course of training was lengthened to 24 months and provision was made for an increase in the number of students from 8 to 12. In 1903 the number of annual admissions was again increased to 20 to provide for the more rapid training of Forest subordinates, and in order to attract a better class of students it was arranged that specially selected students should be eligible for promotion from the Subordinate to the Provincial Forest Service. Up to the close of the year 15 students had passed out of the school, 11 with Higher and 4 with Lower Standard Certificates. The expenditure on school buildings, quarters for Instructors and students, and Museum has amounted to R41,000. Forest School in Burma.

20. Up to the year 1901 little had been done in regard to the investigation of the damage caused to the State forests by injurious insects. The appointment of Mr. E. P. Stebbing, F.L.S., F.Z.S., F.E.S., an officer of the Imperial Forest Service, as Forest Entomologist in January of that year, inaugurated a much needed reform in this direction, and valuable information has since been obtained as the outcome of his work in this important branch of Forest science. The life histories of a number of destructive insect pests have been carefully studied, and with the knowledge so obtained the Forest Officer is placed in a more favourable position to combat their attacks. Among the more important pests that have been studied during the period under review may be mentioned:— Forest Entomology.

Phycita abietella and *Euzophera cedrella* insects infesting deodar. The cricket *Brachytrupes achætinus* which attacks rubber trees, etc. *Cyrtotrachelus longipes*, a pest attacking bamboos. *Hyblæa puera and Pyrausta machœralis*, two teak defoliators. A considerable amount of research work was done in connection with bark-boring pests infesting the deodar, blue pine, silver fir, spruce, Chilgoza pine, and *Pinus longifolia*. It was found that two species of *Scolytus* attacked the stems of Deodar trees, another girdled the branches of saplings and older trees, whilst species of the genera *Tomicus* and *Polygraphus* infested the blue pine and spruce. Other species of beetles were found to attack the other conifers mentioned above. The investigations into the life histories of these bark-borers are of the first importance; a severe visitation of these pests in our valuable coniferous forests would cause an incalculable amount of damage. Observations were also made upon some pests infesting the oaks, *Quercus semecarpifolia, dilatata* and *incana*, a number of defoliating caterpillars, some leaf-rolling weevils (*Apodorus*) and some cone-eating *hymenopterous* insects being studied. The life-history of a large *Sirex* infesting the wood of the spruce was also worked out, as also that of *Monophlebus Stebbingii*, the scale insects of sâl. Some investigations were made regarding the insects which attack sandalwood and mahogany. A very large number of other pests were investigated and several important papers and notes

have been published including two numbers of "Departmental notes on Insects that affect Forestry"; a note on the sandalwood boring pests of Madras: Economic Entomology: a note on the preservation of bamboos from the attacks of the bamboo beetle or shot-borer, and a variety of other papers on injurious insects.

Board of Scientific Advice.

21. In order to provide as far as possible for the co-ordination of scientific enquiry, which the development of the machinery of the various scientific departments had rendered essential, the Government of India in 1902 constituted a Board of Scientific Advice comprising the heads of the Meteorological, Geological, Botanical, Forest, Survey, Agricultural and Veterinary Departments, together with such other scientific authorities as might from time to time be invited by the Government of India to serve upon it.

Sub-Committees were formed to deal with the investigation of special subjects in the various departments, and Sub-Committee D, of which the Inspector General of Forests is Chairman, undertakes enquiry into questions relating to forest products. Since the constitution of the Board the following products have received special attention by Sub-Committee D:—Cassava, Resin, Turpentine, Plantain fibre and Rubber, much research having been devoted to the collection and analysis of the latices of various plants. Enquiry also was made regarding the utilization in the form of wood pulp for paper making, etc., of bamboos and soft wooded trees for which at present there is little demand, and the services of an expert have been requisitioned to carry out practical experiments in Burma and elsewhere. Numerous botanical specimens, and specimens of timbers have been collected for the use of various institutions in India and abroad, whilst investigation into the profitable manufacture of tannin extracts have steadily proceeded.

CHAPTER I.

CONSTITUTION OF STATE FORESTS.

1.—ALTERATION IN AREA.

[*Vide* Appendices I and II.]

The alterations in forest areas during 1903-04 were as regards reserved and leased forests not so important as in the preceding year though considerable progress was made in reservation. At the commencement of the year there were 90,051 square miles of reserved and 699 square miles of leased forests in charge of the Department; and at its close these figures had risen to 90,658 square miles and 909 square miles, respectively, the net increase of 817 square miles being brought about by the addition of 2,781 square miles and the exclusion of 1,964 square miles. As usual these alterations were due not only to afforestation and disforestation but also to the adoption of more accurate figures in calculation and in some cases to reclassification of forest areas.

2. The alterations during the year of the several provincial forest areas were approximately as follows :—

(*i*) *Reserved Forests.*

In *Bengal* there was a total increase of 53 square miles, additions amounting to 74 square miles and exclusions to 21 square miles.

The United Provinces show a decrease of 23 square miles although 33 square miles were added to reserves. A portion of this loss of area is however merely nominal being due to an exchange uncompleted during the year.

The Punjab forest area increased by 162 square miles. Some 215 square miles were added to reserves as a result of improved compilation and classification. Considerable areas were disforested for the purpose of colonization.

In Burma reservation did not proceed with accustomed vigour. The nominal increase to reserves amounted only to 445 square miles, but of this a considerable portion was referable to recomputation, and exclusions due to the same cause reduced the results of the year's working to a net increase of 331 square miles.

The Central Provinces show an increase of 1,513 square miles and a decrease of 1,681 square miles. The classification of forest areas in the Provinces is undergoing constant changes but the result will for some time continue to be a reduction in the area of reserves until these are permanently constituted.

Assam, *Coorg* and *Baluchistan* show increases of ·20, 163 and 5 square miles, respectively, while the area of forests in the Andamans remained unchanged.

Madras and *Bombay* record an increase of 266 and 23 square miles, respectively.

(*ii*) *Protected forests.*

During the year the area of protected forests increased from 9,519 square miles to 9,865 square miles or by 346 square miles.

In Bengal 71 square miles were added as a result of the adoption of Land Settlement figures in the Puri Division.

In the Punjab the area was decreased by 12 square miles made over to the Irrigation Department.

In Bombay additions and exclusions accounted for a net increase of 287 square miles.

(*iii*) *Unclassed State Forests and Public Forest Lands.*

There was an increase of 14,714 square miles under these classes of forests, of which 15,189 were due to changes in Burma where, however, it appears

probable that there was no real increase to the responsibilities of the Department, more correct computations having been introduced. In other Provinces minor alterations led to a reduction of 475 square miles.

3. The total areas compared by classes are as follows :—

	1902-03.	1903-04	Difference.
Reserved Forests	90,051	90,658	607
Leased ,, ...	699	909	210
Protected ,, ...	9,519	9,865	346
Unclassed Forests and Public Forest Lands.	116,555	131,269	14,714
	216,824	232,701	15,877

showing that the area over which the Department was placed in a position to exercise technical control and supervision increased by 1,163 square miles.

2.—Forest Settlements.

[*Vide* Appendix III.]

4. During the year areas amounting to 962 square miles were finally settled and 1,519 square miles (of which 1,185 square miles were in Burma) were taken in hand, as compared with 1,711 square miles and 1,103 square miles, respectively, in the preceding year. Of the areas finally settled 309 square miles were in Burma, 254 square miles in Madras, 169 square miles in Coorg, and 116 square miles in Bombay; areas in other provinces made up the balance of 114 square miles. At the close of the year a total area of 3,179 square miles was undergoing settlement as compared with 2,363 square miles in the preceding year.

5. The total area of reserved and protected forests that have been finally settled now amounts to 96,466 square miles. It is impossible to state the actual cost of settlement work from data available in the Provincial Reports. Apparently some R72,000 were spent during the year, inclusive of payments as compensation for land and rights; in Burma over R17,000 were paid on this account. In some provinces no special expenditure was incurred, the work being carried out by the revenue officials on the district staff.

3.—Demarcation.

[*Vide* Appendix IV.]

6. The consideration of the demarcation of the forests of India is of importance only as regards reserved, leased and protected forests over which the Department exercises professional supervision, for in by far the larger proportion of unclassed forests and public forest land under the management of the Department there can at this time be no question of effective demarcation. It has been shown (in paragraph 3) that the increase in area of reserved, leased and protected forests amounted during the year to 1,163 square miles and during the same period the total length of boundaries increased by 8,890 miles to 161,846 miles. Of this total some 10 per cent consisted of natural boundaries and of the remainder 24,222 miles remained undemarcated at the close of the year. In the Bengal Presidency the Punjab is most in arrears with 3,852 miles of boundary undemarcated; Burma has still 706 miles to complete;

the other Provinces have their demarcation work approaching completion or actually complete. In Madras 1,722 miles are still awaiting demarcation, and in Bombay 17,521 miles are recorded as being in the same condition. Attention was invited in the Review of last year to this important work, but during the year under review as compared with the preceding year less expenditure was incurred on new work and less work was done, though at a higher average cost. The cost of repairs and upkeep increased during the year by some ₹15,000, although about the same length of boundary as in the previous year was operated on, and these statistics would seem to show that greater energy in extension of demarcation work and greater care in supervision of expenditure thereon would be followed by more favourable results.

4.—Forest Surveys.

[*Vide* Appendices V and VI.]

7. An important change in regard to the control of Forest Surveys was made during the year by the arrangement that the Forest Surveys in Madras and Bombay should come under the supervision and professional control of the Superintendent of Forest Surveys. On the 1st April 1904 all Forest Surveys were amalgamated and formed into a branch of the Survey of India under uniform rules and conditions.

8. Four Survey parties were employed during the year on Forest Surveys —one in Bombay, one in Madras, and two detachments in Burma. Three thousand two hundred and two square miles of forest were surveyed on the 4-inch scale and 158 square miles on the 8-inch scale, or a total of 3,360 square miles distributed as follows:—

Seven hundred and thirty-four square miles in Bombay, 801 square miles in Madras, and 1,825 square miles in the Bengal Presidency.

9. The total cost of surveys was ₹4,95,401 as against ₹4,92,977 in the preceding year, for an outturn of 3,816 square miles.

The cost rates of the surveys varied considerably in different provinces, the lowest rate per square mile for the four-inch detail survey being ₹25 in the Punjab and the highest ₹118 in Burma. The 8-inch survey in Bombay cost ₹139 per square mile. Easily accessible forests have mostly been surveyed and work is now extending into more remote tracts where labour and transport difficulties increase; in consequence the tendency in future will be for the cost rate to increase whilst the outturn will probably be less. Up to the end of the year under review about 63,000 square miles of forests have been surveyed leaving some 40,000 square miles for which large scale maps are not available. Much of this balance however consists of forests the value and nature of the working of which will probably not justify for many years the expenditure on special surveys.

10. Good progress was made during the year in the preparation and publication of maps; 404 sheets were published including 4 working-plan and 10 other special small scale maps, and a map on the scale of 1-inch = 48 miles showing the distribution of Government forest lands and progress of surveys and working plans, which together with a series of stock maps showing the distribution of the more valuable timber trees and the rainfall formed part of the forest exhibit at the St. Louis Exhibition.

11. Details of the surveys carried out in the various Provinces will be found in the following paragraphs:—

Bengal.—A strong detachment was employed in the Tista Division and completed the 4-inch surveys of forests in the Darjeeling district. The survey of the protected forests in Singhbhum was also completed during the year. Three hundred and ten square miles were surveyed on the 4-inch scale in these divisions. In addition to these surveys four surveyors were placed at the disposal of the Divisional Forest Officer for the purpose of demarcating the boundaries of mica mine leases in Kodorma, and preliminary triangulation was carried out in Angul in preparation for the 4-inch detail survey which is proposed for 1904-05. Fifteen maps were published during the year. The expenditure on forest surveys for the year amounted to ₹26,010, of which ₹18,571 are debitable to the Forest Department.

Assam.—The survey of the Garo Hills, Kamrup and Nowgong forest reserves was continued. The progress, though still slow owing to the nature of the country, its unhealthiness, and labour difficulties, was better than for the previous year and the cost rates were generally less. In addition to traversing and triangulation an area of 160 square miles was surveyed on the 4-inch scale. The expenditure on survey work was ₹30,955 of which ₹21,668 are debitable to the Forest Department.

United Provinces.—The only surveys carried out during the year were a 4-inch detail survey of 36 square miles in the Naini Tal and Ganges Divisions and the traverse survey of 2 miles in Kheri in connection with the Nepal-Kheri boundary. The expenditure on surveys was ₹2,129, of which ₹1,737 are debitable to the Forest Department. The republication of the Kumaun-Garhwal series of forest maps is in progress.

Punjab.—Two hundred and nine square miles were surveyed in the Lahore and Jhelum Divisions. The expenditure was ₹7,517 which includes the mapping and publishing charges for 33 sheets published during the year. Of this amount ₹5,048 are debitable to the Forest Department.

North-West Frontier Province.—The only survey work done during the year was the preliminary triangulation for the 4-inch detail survey of the Khanpur and Dungagalli Ranges which is proposed for 1904-1905. The expenditure on this work was ₹2,745, of which ₹1,921 are debitable to the Forest Department.

Burma.—In addition to triangulation and traversing, 1,108 square miles were topographically surveyed on the 4-inch scale in the Mandalay, Ruby Mines and Yaw Divisions in the Southern Circle, in Katha, Myittha and the Upper and Lower Chindwin Divisions in the Northern Circle, and in Thayetmyo in the Pegu Circle. The expenditure on these surveys was ₹2,05,177, of which ₹1,43,625 are debitable to the Forest Department. The cost rates as usual varied considerably according to the local conditions. Fifty-six maps were published during the year.

Central Provinces.—With the exception of the Berar Circle surveys are completed in all Divisions. Seventy-seven maps were published during the year, but nearly 100 still remain. The expenditure on surveys was ₹6,614, of which ₹4,629 are debitable to the Forest Department, chiefly on account of mapping and publishing charges, but also including the cost of a survey of 2½ miles in the Hoshangabad Division.

In Coorg, Ajmer-Merwara, Baluchistan and the Andamans no surveys are reported.

Madras.—An area of 801 square miles was topographically surveyed on the 4-inch scale in Godavari, Kurnool and Kistna in the Northern Circle and in South Canara, and North Coimbatore in the Southern Circle. The total expenditure on forest surveys was ₹1,07,701. The cost rates owing to the increased difficulties of the area under survey and to a very unhealthy season were high. Eighty-three maps were published during the year.

Bombay.—Seven hundred and thirty-four square miles were topographically surveyed, of which 576 were on the 4-inch scale in Khandesh and Satara, and 158 on the 8-inch scale in Thana and Nasik. The total expenditure on forest surveys was ₹71,193 of which ₹49,835 are debitable to the Forest Department. The cost rates remain practically the same as for last year. One hundred and thirteen maps were published during the year.

CHAPTER II.

MANAGEMENT OF STATE FORESTS.

1.—Regulation of management.

Working Plans.

[*Vide* Appendices VII, VIII, and IX.]

12. In the Bengal Presidency working-plans for areas amounting to 1,131 square miles were sanctioned during the year. The most important additions to forests under regulated working were in Burma where 743 square miles were brought under working-plans. In the Central Provinces, in consequence of changes in classification of areas, and also of want of demand, working-plans for areas aggregating 2,193 square miles were abandoned. Working-plans for some 8,820 square miles in the Bengal Presidency were in course of compilation at the close of the year.

In the Madras Presidency working-plans for 1,072 square miles were sanctioned, plans for 3,789 square miles remaining in course of preparation at the close of the year.

In the Bombay Presidency plans for 698 square miles were sanctioned, whilst plans for 2,378 square miles remained in course of compilation.

13. The total area under Working-plans are now as follows :—

	At commencement of year.	Added during year.	Total.
Bengal	23,276	1,131	24,407
Madras	4,031	1,072	5,103
Bombay	3,472	698	4,170
Total .	30,779	2,901	33,680

Although a total area of 147,898 square miles is shewn as that for which working-plans have still to be taken in hand it is unlikely that for many years to come it will be desirable to compile plans for the greater portion of this area which includes large tracts of unclassed State forests whose produce is as yet not sufficiently in demand to justify the detailed regulation of the yield. The necessity for the abandonment of working-plans for large areas in the Central Provinces is mainly due to the preparation of these plans being undertaken before there existed a reasonable hope that their prescriptions could be carried out and it is unlikely that this mistake will be repeated.

14. The following paragraphs show the progress made during the year in the preparation of working-plans in the various provinces :—

Bengal.—The working-plan for the Puri reserved forests (110 square miles) was sanctioned during the year, while progress was made in the preparation of Working-plans for the forests of Singhbhum (725 square miles), Kurseong (107 square miles) and Buxa (308 square miles). The revision of the existing Working-plan for the Sundarbans Forest Division (3,839 square miles) was undertaken during the year. The Working-plans of the Darjeeling Jalpaiguri and Tista forests were also undergoing revision during the year. The preparation of the Working-plan for the Palamau reserved forests (188 square miles) which was undertaken during the year, has been deferred pending the completion of the Forest Survey.

United Provinces.—The existing Working-plan for the Dehra Dun forests (278 square miles) was revised during the year though not actually sanctioned till 1904-05; the revision

of the existing Plans for the Lansdowne Reserve (18 square miles), Naini Tal Municipal forests (2 square miles), Naini Tal Cantonment forests (about 1 square mile) and the Tehri-Garhwal leased deodar forests (73 square miles) was undertaken during the year.

Punjab.—No new working-plans were sanctioned during the year but the Working-plans for the Kotkhai-Kotguru forests (13 square miles) and the Shahdera-*cum*-Jugian Plantation (3 square miles) came under revision and were sanctioned during the year. Working-plans for the Jubal, Bilaspur, Theog and Mailog forests of the Simla Hill States were also sanctioned, but these Plans will not be controlled by the Forest Department. Progress was made in the revision of the existing Working-plan for the Bashahr leased forests and the compilation of Working-plans for the Kangra and Pabar Valley forests.

Burma.—Working-plans for the Pyukun and Pyuchaung (449 square miles), Sinthé (106 square miles), Taungnyo (106·5 square miles) and Pozaungdaung (81·5 square miles) Reserves were sanctioned during the year; progress was made in the compilation of Working-plans for the forests of the Rangoon Division (272 square miles), South Zamayi Reserve (244 square miles), Yoma Reserve (570 square miles), Thaungwin Reserve (240 square miles), Mehaw and Ziyaing Reserves (39 square miles) and Nahan Reserve (248 square miles) while the preparation of Working-plans for the Satpok, Sitkwin and Thindawyo Reserves (20 square miles), Kindat, Kampat, Tatkon, Yu (part), Matu Bon and Wayé Reserves (539 square miles) and Thaungdwingyi Reserves (397 square miles) and Nahan* forests (248 square miles) was undertaken during the year. The preparation of the Working-plan for the Ela Reserve has been postponed as being unnecessary at present.

Central Provinces.—No new working-plans were sanctioned during the year. The revision of the existing Working-plan for the East Pench Range (225 square miles) was undertaken while progress was made in the compilation of a Working-plan for the Sambalpur Range forests and the collection of data for Plans in Amraoti, Buldana and Ellichpur Divisions. The preparation of the Working-plans for the Saugor (734 square miles), Motinala (203 square miles) and Banjar Valley (219 square miles) forests was undertaken during the year.

Assam.—No new plans were sanctioned during the year. Progress was made in the revision of the Goalpara Working-plan (522 square miles), while the preparation of a Working-plan for the Nambor Reserve (387 square miles) was undertaken during the year.

Coorg.—No work was done during the year. The preparation of the Working-Plan for the Janikal forests was postponed owing to the shortness of establishment. The continuance of the Spike disease has led to the suspension of the Working-plan for the Sandalwood area.

North-West Frontier.—Progress was made in the preparation of the Working-plan for the Dungagalli forests while the compilation of Working-plans for the Siran Range (52 square miles) and Khanpur forests (50 square miles) was undertaken during the year.

Ajmer-Merwara.—Some progress was made in the revision of the existing Plan of the Province.

Madras.—Working-plans for 1,072 square miles were sanctioned during the year while the preparation of working-plans for 1,770 square miles was undertaken. An area of some 5,103 square miles is now controlled by sanctioned working-plans.

Bombay.—Working-plans were sanctioned for 698 square miles during the year, while the preparation of Working-plans for 759 square miles was undertaken. The total area for which Working-plans are now in force is 4,170 square miles.

2.—Communications and Buildings.

[*Vide* Appendix X.]

(*a*) *Roads and Bridges.*

15. Good progress was made during the year on the important work of constructing and maintaining communications. Rupees 1,70,619 were spent on new works and R1,13,594 on repairs during the year as compared with R1,03,000 and R91,601 in the preceding year.

16. In the Bengal Presidency Burma shows an outlay of over R56,000 of which R37,000 were expended on the construction of a railway siding and suspension bridge in the Rangoon Timber Depôt. In the Northern Circle of

*A revised Preliminary Report for Working-plans for these forests was received during the year.

that Province 226 miles of inspection path were made at a cost of about R11,000. Much work of this description remains to be done in Burma, but progress is limited by the amount of supervision available and in some cases by the want of suitable labour. It is true that contract lessees at times find it profitable to construct and maintain forest communications and it is noted as an example that in the Taungdwingyi forests in the Southern Circle the Bombay-Burma Trading Corporation opened out 9 miles of road and introduced steam traction at a cost of nearly ½ a lakh of rupees. But such an outlay can only be profitable when long leases of rich forest areas are granted; for the opening up of the greater portion of the forest the Department must itself remain responsible. In the Andamans nearly R28,000 were spent on the construction of tramways.

17. Madras expended R17,800 on roads, principally in the Southern Circle, on the conversion of a bridle path into a cart track in North Coimbatore, and the construction of bridle paths and roads in Madura. The expenditure in Bombay amounted to R21,000, the most important work being the construction of a metalled road, 15 miles in length, leading to the Tawargatti Timber Depôt and costing R11,000. The importance of the proper upkeep of permanent export and inspection roads received in most provinces due consideration. In the United Provinces and the Central Provinces the expenditure under this item was larger than that on new works. In the forme good roads have been aligned, in the latter existing cart tracks often only require improvement to render them serviceable for export purposes. The Madras expenditure under repairs also exceeds the cost of original works and in Bombay amounts to two-thirds thereof.

(*b*) Buildings.

18. With regard to buildings progress continued on the whole to be satisfactory, the total expenditure amounting to about R3⅔ lakhs as compared with 3¼ lakhs in the preceding year. In the Bengal Presidency, Bengal and Burma show the greatest activity in new works with an expenditure in each case of over R40,000, the Central Provinces and the United Provinces coming next on the list. The Assam expenditure of R4,373 would appear to be insignificant compared with the requirements of the provincial forests. The expenditure on new works in Bombay amounted to R37,000. The repairs of forest buildings throughout India cost R1,18,739, an almost identical sum to that expended in the previous year. Much still remains to be done in many Provinces in regard to the provision of suitable accommodation for subordinates especially in Bengal where several divisions are said to be lacking in this respect.

(*c*) Miscellaneous Works.

19. Under Miscellaneous Works, which include such works as construction and maintenance of wells, tanks and bunds and clearing of obstructions from streams, R52,071 were spent as compared with R48,851 in the previous year.

3. Protection of Forests.

(*a*) General Protection.

[*Vide* Appendices XI and XII.]

20. Throughout India 10,928 cases were decided by the courts and 40,709 cases compounded during the year as compared with 11,022 and 36,890 cases, respectively, in the preceding year, or a total of 51,637 cases decided as against

47,912 in 1902-03. The proportion of convictions to the total number of cases decided by the Courts rose from 86·9 in 1902-03 to 88·4 in the year under review.

In 7,410 cases the offenders remained undetected as compared with 6,470 in the preceding year, and as usual the greater proportion of these cases were in connection with injury to forests by fire. Bombay again heads the list with 2,793 such cases, the remaining 1,287 occurring in other provinces. Speaking generally, there was a marked increase in the number of breaches of forest rules in Bombay, the total of all classes of offences being 19,462 cases as compared with 13,134 in the preceding year. This increase is attributed to a new system of registering offences, and to an increase in the numbers and activity of the staff. It occurred principally under cases of unauthorized grazing the number of these cases during the year under review being 8,114 as compared with 3,395 in 1902-03.

In Madras the number of cases diminished from 23,125 to 21,883 the decrease being mainly under grazing offences. There was however an unsatisfactory increase in the number of undetected offences under the heads of unauthorized removals of forest produce and injury by fire.

In Burma there was on the whole an increase in forest crime but the total number of fire cases decreased from 129 in 1902-03 to 65 in the year under review. The number of offences of this description was, considering the large area under protection, remarkably low.

21. It has been shown that the number of compounded cases increased during the year by nearly 4,000 and it appears possible that this method may have been in some Circles too largely employed. It is noticed that in Bengal orders were issued making it more generally obligatory to resort to the magisterial Courts, while in the Central Provinces it was considered desirable that the Courts should be more freely resorted to especially when persistent offenders have to be dealt with or where there is a notorious disregard of forest regulations. In 234 instances of injury by fire in the Bengal Presidency compensation was accepted and of these no less than 198 occurred in the Central Provinces and Berar, the highest number in any other provinces being 15 in the Punjab. The compounding of this kind of offences should, it is thought, be rarely permitted.

22. The following statement shows the forest offences of 1903-04 compared with the average number of offences of 3 preceding years for all India:—

	Average 1900-01—1902-03.	In 1903-04.
Injury by fire	3,993	4,977
Unauthorized felling or removal of forest produce	29,130	30,276
Grazing without permission	17,782	21,230
Other offences	3,420	4,006
TOTAL .	54,325	60,489

(*b*) PROTECTION FROM FIRE.

[*Vide* Statement below and Appendix XIII.]

23. The total forest area under systematic fire protection was 38,002 square miles as compared with 36,651 square miles in the preceding year; notwithstanding the increased area attempted only 2,995 square miles were burnt over as compared with 3,907 square miles in 1902-03.

The following statement shows the results of protection during the year under review and during the preceding five years :—

Province.	Area in square miles.		Proportion of forests under fire protection to total area of reserves.	Percentage of failure to area attempted to be protected.	
	Attempted.	Protected.		Average of past five years to 1903.	1903-04.
Bengal	2,169	2,060	36	3·9	5·0
United Provinces	3,211	3,196	79	2·6	·5
Punjab	862	854	35	2·3	·9
Burma	8,151	7,642	41	13·9	6·0
Central Provinces including Berar.	*7,104	6,872	31	3·3	3·7
Assam	†996	991	26	3·1	0·5
Coorg	208	205	51	6·7	1·4
North-West Frontier Province	76	71	32	9·3	6·6
Ajmer	142	142	‡100	2·2	...
Total of Provinces outside Madras and Bombay.	22,919	22,033	38	6·4	3·8
Madras	5,642	5,104	31	4·8	9·5
Bombay	9,441	7,870	70	12·8	16·4
Grand Total, 1903-04	38,002	35,007	42	7·8	7·8
„ „ 1902-03	36,651	32,744	40	7·5	10·7

* Excludes 3,132 square miles of partially protected areas.

† Excludes 196 square miles of partially protected areas.

‡ An area of 132 acres was not protected out of 90,792 acres attempted.

24. The most marked success occurred in Burma where the percentage of failure fell from 23·2 in 1902-03 to 6·0 during the year under review. This satisfactory result though due in a great measure to a favourable season, may perhaps to some extent also be referable to improved systems of fire-protection recently introduced. In the United Provinces the results were also very satisfactory, only ·5 of the area attempted being burnt as compared with 3·7 in 1902-03. In Bombay the efforts to protect the forests from fire were, save in the Northern Circle, not very successful, the percentage of failure was higher than in the preceding year and stands at over 16·4 per cent. against 3·8 per cent., the average for the forests of the Bengal Presidency.

25. The difficulty of effective supervision over large or scattered areas, the scarcity of labour, the indifference or antagonism of the neighbouring population, the carelessness or inefficiency of the forest staff, are all conditions of common occurrence with which the forest officer has to contend, and when these are accompanied by unseasonable climatic influences his task becomes almost hopeless. The continued success of the measures taken to ensure protection from fire in many provinces is proof of the good work that has been accomplished in combatting local difficulties, and when the season is favourable, as was the case in the year under review, the results obtained are as a whole eminently satisfactory.

26. The origin of the forest fires is detailed in Appendix XIII. It is satisfactory to see that the number of fires attributed to intention or malice decreased from 742 in 1902-03 to 558 in the year under review.

(*c*) PROTECTION FROM CATTLE.

[*Vide* Appendices XIV and XV.]

27. Out of a total area of 232,701 square miles of Reserved, Protected and Unclassed forests only 37,671 square miles or 16 per cent. were totally closed to grazing, thus no less than 195,030 square miles were available for grazing though to 23,859 square miles of this area browsers were not admitted. Upwards of thirteen millions of animals including buffaloes, bullocks, cows sheep, goats and camels grazed in the State forests during the year. Of this number over 2½ millions were allowed to graze free and upwards of 2 millions at privileged rates.

The number of cattle impounded for illicit grazing showed a satisfactory decrease over the average for the three previous years, notably in Madras where only 292,196 cattle were impounded as compared with the previous three years' average of 428,410. The great danger to which the forests are exposed by browsers in this Province has necessitated considerable limitations of the number of animals admitted to the State forests, but yet the number of goats and sheep browsing during the year amounted to 1½ million head as compared with 2¼ millions for the whole of the Bengal Presidency. In Bengal the number of cattle impounded suddenly decreased from the previous three years' average of 3,656 to 1,027, but there seems to be no certainty that this was due to a decrease in illicit grazing; it might be equally referable to the slackness of the executive forest staff.

(*d*) PROTECTION AGAINST INJURIES FROM NATURAL CAUSES.

28. Among the more important injuries from natural causes to which the forests are liable may be mentioned climbers, insects, parasites, frost, drought, etc.

In the Tarai forests of *Bengal* and *Assam*, climbers often hinder reproduction and are also destructive to the young growth; repeated cutting back at regular intervals appears to be the only method by which it is possible to keep their too luxuriant growth under control. During the year under review such operations extended over about 50,000 acres of high forest in Bengal, and 9,527 acres in Assam were freed from these pests. In both these provinces wild elephants cause some damage to the growing stock.

In the *United Provinces*, climbers were cut over 123,000. Less damage was reported than in previous years from insect attacks.

In *Burma* considerable progress was made in climber cutting and in the removal of trees attacked by *epiphytes*. Some damage was done by defoliators and by the "bee-hole borer" both in natural forests and in plantations.

In the *Central Provinces*, frost is one of the chief causes of injury to the young stock and the effect of the great drought which culminated in 1900 is still felt. Following on abnormal conditions there was a plague of rats in Ellichpur which caused some damage to bamboos, while pigs, squirrels and antelope injured the babul forests in many places. Swarms of locusts also invaded the greater portion of the forests of the Berar Circle, but fortunately confined their depredations chiefly to grass and the less valuable timber trees, teak being but little affected.

In *Coorg*, the spike disease still continues to cause mortality amongst sandal trees. The spread of the epidemic is, however, apparently in some measure restricted by the preventive measures adopted of uprooting and destroying diseased trees. Considering the great value of these forests, it would seem desirable that measures for the special investigation of this disease should be arranged.

In *Madras*, climbers were cut in some of the felling areas and elsewhere by forest subordinates, but it appears doubtful whether such employment save in dry forests, the desultory

efforts of forest guards can have much effect in controlling the growth of climbers. Several insect and fungus pests caused damage principally to casuarina teak and mahogany.

In *Bombay*, swarms of locusts attacked and defoliated trees in all circles but Sindh and many teak seedlings were destroyed by the larvæ of a beetle in the Northern Circle. Systematic climber cutting does not appear to have received much attention in this Province.

29. Although the post of Forest Entomologist was not filled during the year, investigations and research in this important science were continued. The more special studies were in connection with the attacks by various insects on the casuarina trees of Madras, of which the most harmful is the caterpillar of the moth *Arbela tetraonis*. Other insects which cause damage to this species include the date-palm beetles, and larvæ of longicorn beetles.

Investigations with the object of preventing the attacks on bamboos of the 'shot-borer' beetle were successfully completed. It was proved that soaking first in water and then in Rangoon oil would preserve bamboos from the attacks of this borer for at least a year and probably for longer. Preliminary investigations were also made regarding the serious insect attack on the chilgoza tree (*Pinus Gerardiana*) in Zhob.

30. The Forest Entomologist, who was during a part of the year, employed as Superintendent of the Natural History Section of the Indian Museum, conducted these researches and was also responsible for the identification of various insects which caused damage to forest vegetation in various parts of India and for the issue of many useful monographs, among which may be mentioned Notes on the sandalwood boring pests of Madras, on the Life History of *Arbela tetraonis*, on the preservation of bamboos from the bamboo beetle or shot-borer, on the *Monophlebus* scale insect of the Kheri sâl forests and also on various insects which attack agricultural crops.

4.—Sylviculture.

(*a*) Natural Reproduction.

31. The majority of the Circle Reports of the year contain interesting information under this important heading. The subject of protection of areas under regeneration from men, cattle and fires has been treated under other sections and the success attained has been therein recorded, but though it is comparatively easy to afford such protection to limited areas which are under coppice treatment, or where the reproduction of a coniferous forest is attained by regular regeneration fellings, it is otherwise with the vast tracts of deciduous forests where the system of selection is necessarily and wisely in operation. In these tracts the forester may not rest content with the removal of mature stems of the more valuable species; he has to aid natural reproduction by the felling of inferior stems, by the cutting of climbers, by careful opening of the canopy, and in these operations he finds himself often hampered or prevented by the insufficiency of a supervising staff or the scarcity or unwillingness of local labour.

32. In the damp climates of eastern India the luxuriant vegetation, encouraged by protection from fire, places special difficulties in the way of the natural regeneration of sâl and teak and these difficulties have become, of late years, more and more apparent, proving that the success which in the drier localities accompanied the careful protection of the forest is not necessarily repeated under different conditions. Such protection in Northern and Central India has, in many places, resulted in an almost impenetrable growth of the

desired species, so that judicious thinning of the crop is all that is subsequently required, but in damper climates its effects are often to encourage the spread of an ever green forest or the too luxuriant growth of bamboo and climbers under whose shade the natural reproduction of teak and sâl would be impossible without artificial aid skilfully and frequently applied. Interesting experiments in combating the disabilities locally resulting from continued protection from fire were continued in Burma and will, it is hoped, be instituted in Bengal. Meanwhile it is not evident from the Circle reports what sums have been expended in operations to aid natural regeneration though it is apparent that here and there such operations have been carried out. It may be that in some forests natural regeneration was rendered easier by operations directly intended to benefit the growing stock and it would be interesting to keep the statistics, separate for the future. For instance, from certain valuable teak forests, it is reported that reproduction is unsatisfactory by reason of excessive grazing and frequent firing and in parts on account of an excessive growth of bamboos while the insufficiency of the staff is proved by the fact that the selection of trees for felling has often been left to Forest Guards. Here are conditions totally inimical to satisfactory regeneration which require the immediate intervention of the skilled forester with a suitably strong staff at his disposal, for the longer these conditions are permitted to continue the more rapid will be the deterioration of the forest and the greater the difficulty and expense incurred in its reclamation.

(*b*) Artificial Reproduction.

[*Vide* Appendix XVI.]

33. The most important addition to the areas under regular plantations occurred in Bombay where 3,290 acres of plantation, mostly babul, were added during the year. In Burma 1,555 acres of teak and cutch were planted up. The additions in other Provinces were nominal. The area of taungya plantations, of teak, cutch, pyingado and padauk was increased in Burma by 3,527 acres.

34. In the Andamans 100 acres were sown with mangrove seed. An interesting experimental "taungya" plantation of padauk was made during the year under review and 100 acres were sown with padauk seed which having germinated well the plantation so far promises to be a success. The question of reproduction of this valuable species is of importance, as its natural reproduction is in the South Island remarkably scarce, the present condition of the forest not being favourable, while the steps taken hitherto to replace it by cultural operations have not met with much success. The continued removal of the too luxuriant undergrowth opening out of the canopy, and hoeing up the soil where necessary, might possibly conduce to successful results, but the expense of these operations and the difficulty of the labour supply justify the attempt that is now being made to create padauk plantations on the system which has at times proved so effective in Burma.

35. Excluding the Mergui rubber plantation, which is still considered to be in the experimental stage, the area of plantations throughout India at the close of the year under review was as follows:—

	Acres.
Regular plantations	62,537
'Taungyas'	69,562

The expenditure incurred on plantation during the year was ₹1,28,974, of which ₹69,055 were spent in Burma, ₹32,359 in Madras and ₹11,194 in Bombay.

36. Cultural operations, chiefly comprising the filling up of blanks in natural forests by transplants and dibbling in of seed, were carried out in most provinces. In Bengal upwards of a lakh of transplants were put out. Some 8,000 young walnuts were very sucessfully transplanted on the hill forests of the Darjeeling Division. Natural reproduction in the United Provinces is generally so abundant, that it is seldom necessary to resort to cultural operations. In the School Circle however some 75,000 deodar and a smaller number of silver fir and spruce were planted out while sâl, kail and oak seeds were dibbled in various forests. In the Punjab the operations consisted principally of sowing and planting deodar in blanks, but sâl and sissoo seed was also sown. In Burma sowings of teak, pine and cutch were made with varying success.

Teak, babul, as well as the seed of other species, were sown in the Central Provinces, where also the bamboo sowings of 1901, which were believed to have been completely destroyed by rats, are now found to be yielding good results.

In Madras the seed of mangrove, teak, sissoo, babul and other species was sown and mixed sowings of *Anogeissus latifolia* and sâl were also made. In Bombay teak, blackwood and other species were planted out in the forests. In the Central Circle nearly 7 lakhs of seedlings of 6 species were raised in the Central nursery, but the utility of maintaining a central nursery to supply plants to distant divisions is considered doubtful. The attempts to replace natural regeneration of teak in the Kanara forests by dibbling in seeds and planting out young seedlings have been hitherto unsuccessful, apparently owing to ineffective supervision and want of system. Small teak nurseries are now being formed and with better supervision better results are hoped for.

The following table shows the amounts spent in the different provinces.

	₹
Bengal	8,015
United Provinces	2,711
Punjab	6,551
Burma	8,499
Central Provinces	2,224
Assam	...
Coorg	83
North-West Frontier Province	449
Ajmer	22
Baluchistan	12
Andamans	...
Madras	7,596
Bombay	12,546
TOTAL	48,708

(*c*) OPERATIONS FOR THE IMPROVEMENT OF THE GROWING STOCK.

37. These important operations comprise weedings, thinnings, cleanings, girdlings and improvement fellings, carried out with the object of improving the growing stock in natural forests, and whilst not immediately remunerative—the produce being often unsaleable—their importance as affecting the

future yield can hardly be over-estimated. It is therefore satisfactory to learn from the Circle reports that much good work in this direction was done during the year.

In *Bengal* most of the felling areas were attended to, though the amount of weeding and cleaning is still considered insufficient. In the *United Provinces* the girdling of inferior species and those suppressing the growth of the more valuable species was continued in accordance with the prescriptions of working plans.

Similar operations were undertaken in the *Punjab*, the improvement of some forests in consequence of systematic climber cutting and fire protection being reported as very marked.

In *Burma* improvement fellings, and weedings of plantations were the most important of the works under this head, the paucity of supervising officers, however, prevented all prescriptions of working plans being complied with.

In the *Central Provinces* thinnings of babul, cutting back of unpromising growth and girdling of inferior species were undertaken for the benefit of the growing stock.

In *Assam*, with the exception of the removal of badly grown sâl trees in certain areas, no special operations for the removal of unsaleable materials in thinnings, weedings, girdlings and improvement fellings were apparently made.

In *Madras*, thinnings of plantations and improvement fellings were continued, but not apparently on very extensive areas.

In some of the *Bombay* Forest Circles little seems to have been effected. It appears from the reports that no operations for the improvement of the growing stock were attempted in the Northern Circle; that in the Central Circle some weeding was done in babul felling areas; while in Sindh operations were restricted to the thinning of a few acres of plantation. In the Southern Circle, however, crooked and damaged teak saplings were cut back over an area of 12,449 acres. Similar operations in previous years combined with the girdling of inferior species are reported to have produced markedly good results. The Conservator writes: "There is great need of sylvicultural operations for the improvement of the growing stock especially in Kanara, but under present conditions it is almost impossible to do anything on a large enough scale in consequence of press of other work, the difficulty of finding labour, and the want of properly trained men."

38. It is hoped that these difficulties, which are seemingly entirely due to the insufficiency of the staff, may, by degrees, be removed, not only in Bombay, but in other Provinces where they are equally or even more marked, for the expenditure in cultural operations is probably of the most remunerative character wherever forests of valuable species are under protection.

(*d*) Experiments.

39. The results of experiments with *Hevea braziliensis* show that this species is unsuited to the climate of *Bengal*. Little success has hitherto attended the attempts to find new markets for minor forest products in this Province.

In the *United Provinces*, measurements to ascertain the rate of growth of some indigenous species were continued and sowings of exotics were made in various localities, some of which promise well.

In the *Punjab*, the unsuitability of the *Robinia* for afforestations of poor soils has been proved. The Spanish chestnut continues to thrive in Bashahr and Kulu and *Pinus Pinaster* and *Pinus Laricio* in Chamba.

In *Burma*, the most important experiments are those made with rubber yielding species in Mergui. The plantation now extends over an area of 1,749 acres. The species under observation are *Hevea braziliensis*, *Castilloa elastica*, *Funtumia elastica* and *Mimusops balata* (both from *Trinidad*) *Dichopsis Gutta*, *Willoughbeia firma* and *Ficus elastica*. The expenditure on this

plantation since its formation has been R1,06,622. Among other exotics in the Mergui experimental plantations are Liberian coffee, Cardamoms, Vanilla, and with these fair success is reported. In Upper Burma more satisfactory results are being obtained in growing *Ficus elastica*, but attempts to raise sandal wood, camphor, sissoo and eucalyptus from seed only met with partial success.

In the *Central Provinces* the tassar silk worm rearing experiments were continued in Betul, Bhandara and other forests. Experiments made in the propagation of the lac insect were generally successful. In the Berar Circle some interesting experimental thinnings were carried out, and the taungya method of plantation was attempted.

In *Madras* a considerable variety of exotics and other plants were experimented with, including 8 species of rubber, bamboos, dates, eucalyptus, mahogany, etc., etc.

In *Bombay* investigations comprised the collection of data as to the growth of seedlings of *Bombax malabaricum* under different conditions, the sowing of a few exotic species, and the stocking of blanks by means of an adaptation of combined forestry and field crops.

5.—Exploitation.

(*a*) System of Management.

40. The varying conditions of the growth of forests and of the demand for their produce regulate throughout India the adoption of varying sylvicultural systems. Where the yield consists of timber of one or two of the many available species, the system of management is designed to control the exploitation of such trees as teak, sâl and deodar by the prescription of selection fellings and such fellings must as a rule be accompanied by other operations with the object of aiding the principal species to maintain a preponderance in the forest. In other localities the demand for poles and fuel may absorb the whole of the forest outturn and here the system of coppice with standards is usually prescribed. Improvement fellings with the object of preparing the more backward forests for the introduction of a regular system of management are still largely required in many provinces. Speaking generally the prescriptions for exploitation under the different working plans in force were carried out in every province though absence of demand for the full yield led to reduced fellings in some cases.

(*b*) Agency of Exploitation.

(*i*) *Departmental Agency and* (*ii*) *Purchasers.*

[*Vide* Appendix XVIII.]

41. Whilst it is still necessary on some forests to resort to departmental agency for the removal of forest produce, the aim of the staff is rightly enough to encourage the sale of standing timber, whereby the supervision necessary to control fellings and extraction is obviously much reduced. This policy has already attained some success as, of an outturn of 57 million cubic feet of timber, only 10 million were removed by Government agency during the year under review, while purchasers removed 100 million cubic feet of fuel and 183 million bamboos, against 17 million cubic feet fuel and 1½ million bamboos extracted by departmental agency.

(*iii*) *Rights and Privileges.*

[*Vide* Appendix XVIII.]

42. As usual the demand of right holders for forest produce was large, the amounts being 4 million cubic feet timber, 53½ million cubic feet fuel, 13½ million bamboos and ₹11¼ lakhs minor produce including grass and grazing.

(*iv*) *Free grants.*

43. In all Provinces free grants of forest produce principally for works of public utility, such as bridges, monasteries, chapels, schools, village rest-houses, etc., and for re-building villages destroyed by fire or floods were made during the year. The value of these grants is not in all cases stated in the Circle reports: apparently the most important were made in Burma.

(*c*) Outturn and Sources of Forest Produce.

[*Vide* Appendix XVII.]

44. The following statement shows the total outturn of timber, fuel, bamboos and minor produce from all forests, reserved, protected and unclassed, under the control of the Forest Department:—

Presidency.		Timber and Fuel.	Bamboos.	Minor produce.
		Cubic feet.	No.	₹
Bengal	1903-04	174,200,117	155,840,002	26,80,089
	1902-03	181,345,643	282,851,296	27,27,405
Madras	1903-04	20,404,621	37,025,554	12,66,664
	1902-03	21,958,556	35,844,728	11,44,255
Bombay	1903-04	38,311,607	5,646,517	5,32,358
	1902-03	42,596,413	4,479,201	7,39,691
Grand Total	1903-04	232,916,345	198,512,073	44,79,111
	1902-03	245,900,612	323,175,225	46,11,351

On the whole there was a decrease in the outturn of timber and fuel of about 13,000,000 cubic feet.

The largest decrease was 10½ million cubic feet in the *Punjab*. This was due to less fuel being extracted owing to contracted departmental operations and to reduced estimates under fuel of right-holders.

There was a net decrease in *Bombay* of about 4½ million cubic feet principally due to less fuel being removed by right-holders.

In the province of *Bengal* the outturn decreased by nearly 3¾ million cubic feet. This result was mainly owing to the removal of less sundri wood from the Sundarbans under more carefully regulated working.

Madras yielded a decreased outturn of 1½ million cubic feet in consequence of less timber and fuel being removed by purchasers.

The outturn from *Burma* increased by some 7 million cubic feet mostly in the Pegu Circle. The Southern Circle showed an increase in the outturn of timber of 1½ million cubic feet but extractions of fuel decreased by 2 million cubic feet.

In the *United Provinces* 2 million cubic feet in excess of that of last year were disposed of chiefly in the Oudh Circle, the exceptional quality of the coppice coupes and greater activity in exploiting the coupes under improvement fellings contributing to this result.

45. The decrease in yield of 125 millions of bamboos requires some explanation. In the Pegu Circle, Burma, the yield fell off by 135 millions

and this is reported as being chiefly due to the area available for cutting being reduced by the flowering in recent years of the bamboos most commonly used, and also to the fact that in the preceding year, in consequence of agricultural difficulties, the villagers were driven to make a living by cutting bamboos. The outturn of bamboos from this Circle fluctuates greatly as is proved by the fact that in 1902-03 there was an excess of 126 million bamboos, while in the year under review there is the large deficit which is here recorded. There was an increased outturn of bamboos from the Central Provinces, United Provinces, Bombay and Madras. In the other Provinces the variations were of comparatively small importance.

CHAPTER III.

Financial Results.

[*Vide* Appendices XIX to XXIII.]

46. The Gross Revenue, Expenditure, Surplus and the proportion of Expenditure to Gross Revenue of the last 31 financial years are shown in the table below :—

Quinquennial periods.	Gross Revenue.	Expenditure.	Surplus.	Proportion of Expenditure to Gross Revenue.
	₹	₹	₹	Per cent.
1873-74 to 1877-78 . .	67,23,191	44,76,303	22,46,888	66
1878-79 to 1882-83 .	79,15,956	52,09,538	27,06,418	66
1883-84 to 1887-88 .	1,10,59,434	71,42,382	39,17,052	64
1888-89 to 1892-93 .	1,51,86,115	82,61,176	69,24,939	55
1893-94 to 1897-98 .	1,74,50,655	96,57,496	77,93,159	55
1898-99 to 1902-03 .	1,90,22,776	1,08,42,872	81,79,904	57
1903-1904 . . .	2,22,16,747	1,21,66,993	1,00,49,754	55

These figures are of more than usual interest as showing the steady increase in forest revenue; while in the year under review the surplus realized exceeds a crore of rupees for the first time since the formation of the Department. These satisfactory results are due to the constant progress made in the organization of the forests and in the utilization of their products, and as the efforts of the Department towards the extension, protection and development of the forests are now only commencing to show some return in an increased yield, it may confidently be predicted that the financial results of the future will much surpass those of the past. That there is still room for the expansion of outturn and revenue under careful and scientific management is proved by the statistics of forestry in Prussia where each square mile now gives a gross income of ₹7,540 and a net profit of half that amount against ₹95 and ₹43 per square mile in India.

47. The gross revenue of the year under review was ₹27,45,207 more than in the preceding year and ₹31,93,971 above the average of the preceding quinquennial period. The surplus of the year amounted to ₹1,00,49,754 which is ₹18,27,545 in excess of that obtained in 1902-03. These favourable results are chiefly due to a larger outturn from Burma, Bombay, the Central Provinces, the United Provinces and the Punjab.

In *Burma*, in consequence of a favourable floating season, of good markets, and of energetic work, the gross revenue improved from 67 to nearly 83 lakhs. The expenditure increased by 4½ lakhs.

In *Bombay* the total receipts of 27½ lakhs exceeded those of the preceding year by nearly 4¼ lakhs. There was an increased expenditure of 1 lakh. The increase of revenue appears to be principally due to higher prices being obtained for teak and to the larger outturn of sleepers. The Central Circle continued to be worked at a loss.

The *Central Provinces* yielded a gross revenue of nearly 20 lakhs as compared with about 17 lakhs in the preceding year, while the expenditure only increased by ¼ lakh. Extraction of timber and fuel is mostly carried out by purchasers; exploitation by departmental agency

being chiefly confined to the supply of railway sleepers and timber for the Ordnance Department. This timely expansion in the forest revenue probably results from the improved agricultural conditions existing in the Central Provinces and, with attention to communications and careful fostering of markets, there can be no doubt that in the future the forests of the Central Provinces will yield a steadily increasing revenue to the State.

In the *United Provinces* the gross revenue rose from 20¼ lakhs to nearly 23 lakhs, owing to a larger outturn of timber, fuel and minor forest produce. The removal of forest produce is now almost entirely carried out by private agency, the export of deodar sleepers from Jaunsar being the most important departmental operation.

The gross revenue of the *Punjab* increased from R15,86,000 in 1902-03 to R17,18,000 in 1903-04. The rise was chiefly due to enhanced prices, increased demand for timber and the substitution in the Upper Ravi forests of exploitation by purchasers for departmental operations.

The increases in revenue over that obtained in the preceding year, in the remaining Provinces, were of less importance. That in *Assam* of nearly a lakh was due to larger sale of sleepers; the expenditure however increased by an almost equal amount.

In *Madras* revenue increased by R44,000 and expenditure decreased by R85,000. *Coorg* showed a rise in revenue of R33,000. Thus with the exception of *Bengal* and *Baluchistan* every Province yielded enhanced revenue. The falling off of nearly 2 lakhs in *Bengal*, was due to restricted export of timber from the Sunderbans and at the same time the expenditure rose by R65,000. There was a normal decrease of R1,000 in *Baluchistan*.

In *Ajmer* the revenue increased by R4,000, and in the *North-West Frontier Province* it remained stationary.

In the *Andamans*, the revenue increased by R1,06,000 whereas the expenditure decreased by R16,000. The increase in revenue was due almost entirely to the increased export of padouk timber.

48. The estimated value of produce such as timber, fuel, bamboos, minor produce, grass and grazing given during the forest year, free or at reduced rates to villagers living in the vicinity of the State forests was R30,69,000 as compared with R33,22,000 in the preceding year. The revenue realized from grass and grazing during the same period throughout India was R17,31,000, this amount being as usual nearly equal to the estimated value of grass and grazing for which no royalty was claimed.

49. The statement below shows the financial results of the working of the forests, after deducting capital expenditure not yielding an immediate return:—

			R
Gross Revenue			2,22,16,747
Value of produce granted free or at reduced rates			30,69,191
	Total value of yield		2,52,85,938
	R		
Gross Expenditure	1,21,66,993		
Deduct expenditure not yielding an immediate return:—			
	R		
(*a*) Roads and Buildings	5,65,375		
(*b*) Cultural operations	3,95,676		
(*c*) Working-plans	83,573		
(*d*) Settlements	1,37,213		
(*e*) Surveys	4,36,857		
(*f*) Demarcation	1,63,821		
Total		17,82,515	
Balance of direct revenue producing Expenditure			1,03,84,478
Surplus of Revenue over Expenditure directly chargeable to Revenue			1,49,01,460

CHAPTER IV.

GENERAL.

1.—ADMINISTRATION.

50. With the exception of the transfer of one post of Assistant Conservator from the cadre of the Punjab-Central Provinces to that of Madras no changes in the sanctioned permanent establishment of the Department took place.

Mr. Wroughton, Inspector-General of Forests, on leave, retired during the year. Six officers of the Imperial Service and four of the Provincial Service also retired. One Imperial and one Provincial Officer accepted permanent employment in British Colonies. The services of one officer of the Imperial Provincial Service were dispensed with. Three officers of the Imperial and one of the Service died. Twelve Conservators were on leave during a part or the whole of the year.

OFFICERS ON FOREIGN SERVICE.

51. The following statement shows the number of officers on Foreign Service in India, and British Colonies, and serving under other Governments.

In India.

Imperial Service.	*Provincial Service.*
1. Mr. McDonell (Central Provinces), Kashmir.	1. Mr. A. H. Mee (Bengal), Orissa.
2. Mr. A. W. Blunt (Central Provinces), Kashmir, (*vice* Mr. McDonell who retired).	2. Mr. Keshavanand (United Provinces), Tehri State.
	3. Lala Daulat Ram (Punjab), Kashmir.
	4. Lala Sundar Das (Punjab), Kotah State.
	5. Lala Jai Kishen (Punjab), Jubal State.
	6. Mr. A. Hunt (Central Provinces), Bastar State.
	7. Rai Bahadur M. Muttannah (Madras), Mysore.
	8. Mr. R. C. Eber-Hardie (Madras), Jeypore.
	9. Mr. V. Alwar Chetti (Madras), Cochin.
	10. Bhagavandas Har Kissan Das Dalal (Bombay), Rajpipli.
	11. Mehdi Hussain (United Provinces), Kashmir.

In the Colonies.

Imperial Service.	*Provincial Service.*
1. Mr. Burn-Murdoch (Burma), Straits Settlements.	1. Mr. C. S. Rogers (Burma), Trinidad.
2. Mr. H. N. Thompson (Burma), Southern Nigeria.	2. Mr. W. H. Craddock (Burma), Federated Malay States.
3. Mr. J. L. Pigot (Assam), Ceylon.	
4. Mr. F. Gleadow (Bombay), Mauritius.	

Under other Governments.

1. Mr. Tottenham (Burma), Siam.	1. Mr. R. C. Thompson (Central Provinces), Siam.
2. Mr. D. O. Witt (Central Provinces), Siam.	

There were therefore 8 Imperial, and 14 Provincial Forest Officers, besides 6 Rangers engaged in bringing the forests of Native States, British Colonies and foreign countries under regular and systematic management.

52. The increasing demand for the assistance of professionally trained forest officers shows how quickly the Governments of Native States are realising the benefits that are likely to accrue from the introduction of sound methods of control and management.

2.—Exports of forest produce.

[*Vide* Appendix XXIV.]

53. The total value of exports at ports of shipment amounted to nearly 445 lakhs of rupees as compared with 320 lakhs on 1902-03, and 232 lakhs in 1901-02.

Lac continues to be the most important article of export and its value rose from 185 lakhs in 1902-03 to 272 lakhs in the year under review. Teak exports also increased during the year from 69 to 91½ lakhs while the value of myrabolams was 42 lakhs or 4½ lakhs more than in the preceding year. There was also a marked rise in the value of cutch and gambier from 13½ to nearly 20 lakhs while exports of Sandal, Ebony and other ornamental woods rose from 10 lakhs to 12 lakhs.

The value of caoutchouc exported increased from 1½ lakhs of rupees in 1902-03 to 3½ lakhs in the year under review, but the quantity exported is still comparatively low being only ⅓rd of the average of the five preceding years.

The only product in which there was a falling off in the value of the amount exported was Cardamoms, the value being R3,37,000 compared with R4,16,000 in 1902-03.

3.—Recruitment and Technical Education.

54. Nine students who had completed the forestry course at Cooper's Hill College were appointed to be Assistant Conservators of Forests and arrived in India at the end of November 1903. They were posted two each to Bengal, the United Provinces and Burma, and one each to Bombay, the Punjab and the Central Provinces.

55. At the entrance examination held in 1904, 11 candidates were selected by the Civil Service Commissioners as probationers to be trained for the Indian Forest Service, and these will be the last to be trained at Cooper's Hill, as consequent on the abolition of the Royal Indian Engineering College it has since been decided to carry out the course of instruction in Forestry at Oxford.

56. The Directorship of the Imperial Forest School at Dehra Dun was held by Mr. A. G. Hobart-Hampden with Mr. H. Jackson as Deputy Director throughout the year. Owing to the absence on furlough of the Forest Entomologist, instruction in Natural Science and in Zoology was given by Lala Ruchi Ram, M.A., Assistant Professor, Government College, Lahore, and Mr. H. W. Peal, Assistant, Indian Museum, Calcutta. Captain Symonds, Superintendent, Forest Surveys, Dr. E. J. Butler, Cryptogamic Botanist to the Government of India, and Dr. J. W. Leather, Agricultural Chemist to the Government of India, conducted the examinations in Surveying, Botany and Physical Science, respectively.

At the entrance examination held in October 1903, 109 candidates presented themselves. Of these 61 qualified for admission, though only 30 subsequently joined the school. Two students who had passed in previous years and 3 men specially exempted were also admitted, making a total of 35

students and of these 5 were Government students, 15 were private students receiving Government stipends, 11 were private students without stipends and 4 were students deputed by Native States. At the final examinations held in March 1904, 29 students obtained the Higher and 9 the Lower Standard certificates.

An official residence for the Deputy Director to be built in the School Park at a cost of R21,000 was sanctioned during the year. A large number of additions including botanical specimens, models, photographs and books were made to the School Museum and Library.

57. The Directorship of the Burma Forest School, Tharrawaddy, was held by Mr. R. S. Troup, Deputy Conservator of Forests, throughout the year in addition to his Divisional charge. 20 students were admitted into the school in 1903, and at the close of the year there were 11 senior and 19 junior students under training.

His Honour the Lieutenant-Governor in the Resolution on the Forest Administration Report of Burma for the year 1903-04, remarked—"The administration of the Tharrawaddy Forest School has been satisfactory. The increase to 40 in the number of pupils, which was sanctioned recently, will permit of the more extensive training of forest subordinates, and a revision of the Forest Department Code, which has been approved by the Government of India, so as to make specially selected students of the school eligible for promotion from the Subordinate to the Provincial Forest Service, will tend to make the school more popular and to attract a better class of students."

4.—Forest Administration in Native States.

58. *Jammu and Kashmir.*—The State forests were administered for the greater part of the year by Mr. J. C. McDonell. He was relieved on retirement in March 1904 by Mr. A. W. Blunt.

The total area increased from 2,479 square miles in 1902-03 to 2,637 square miles during the year under review and the completely demarcated area from 1,727 square miles to 1,959 square miles. Fair progress was made in demarcation and in surveys and it is hoped that all valuable forests which are to be permanently maintained as such will be topographically surveyed on a suitable scale so that arrangements may be made for their continuous treatment under a regular system.

The revenue of the year was much in excess of the previous year owing to a good floating season and to more favourable rates for timber being obtained. A surplus of R7,78,790 was obtained against R5,37,903 in 1902-03.

There seems no reason why the income from the State forests in Kashmir should not continue to increase with proper management, but a critical period appears now to have been reached when organization is of importance as on it will largely depend the future of the forests and their permanent value. No working-plans have as yet been sanctioned, but no doubt after the necessary collection of data good progress will be shown in future.

Though several fires occurred during the year the areas burnt over were insignificant and, owing to the advances made in recent years in preventing fires, damage from this source is practically non-existent. The regulation of grazing in the forests, however, apparently still leaves much to be desired. The control of grazing is not vested in the Forest Department and there is

not the power to close any area to grazing however necessary such closure may be in the interests of reproduction, but in the working-plans now being prepared proposals will doubtless be made for the closure of areas in rotation for a limited period of years.

The importance of the issue of working-plans under the sanction of the Durbar applies therefore not only to the systematic exploitation of the yield of the forests but also to their regeneration, which is now apparently often hampered by injudicious grazing. The Forest Department in Kashmir appears to be considerably undermanned in comparison with others in India, and in the future interests of the forests it would appear advisable that there should be a considerable increase in the staff. Such an increase together with liberal expenditure on demarcation, survey, working-plans, roads and buildings should very soon result in an increased net income.

It is interesting to learn that the wants of villagers in regard to forest produce are very liberally provided for. During the year the value of timber, fuel, minor produce, grass and grazing removed under rights or granted free was estimated to be 6½ lakhs as against the 7¾ lakhs surplus revenue received from the forests by the State.

59. *Mysore.*—During the year a net addition of 145 square miles was made to the reserved areas of State forests, the total area of reserved forests at the close of the year being 2,094 square miles. There are besides about 1,400 square miles of Ghat forests and Kans of the Shimoga district, which are in practice managed as reserved forests. Including 720 square miles of reserved lands the total area of forest lands in the Mysore State is 4,214 square miles or about 14·2 per cent. of the total area of the State.

Progress was made in forest settlements, 414 square miles being treated during the year. The survey of the State forests which has hitherto been carried out by surveyors under the control of the District Forest Officers does not appear to have been altogether satisfactory, and the scheme for the organization of a regular topographical survey by a retired officer of the Survey of India, which has recently been sanctioned, should lead to better results.

The area under sanctioned working-plans remained the same, namely, 135 square miles, but progress is reported in collecting data for the preparation of working-plans for the teak forests in the Mysore district.

There was a satisfactory decrease in the number of forest offences from 839 in 1902-03 to 623 during the year under review, but of the cases taken into court 46 per cent were unsuccessful, pointing to ill-considered or ill-conducted prosecutions.

The total area under fire protection was 1,823 square miles but operations were less satisfactory than in the preceding year, the forests of the Mysore district suffering most heavily, 105 square miles being burnt over out of a total area of 502 square miles attempted.

The spike disease showed no signs of abatement; the measures adopted to prevent the spread of the disease are reported as maintained with vigour. The number of spiked trees uprooted during the year was 23,360 in the Mysore district and 973 in the Hassan district, but so far the origin of the disease and mode in which it spreads remains a mystery, nor apparently has any attempt been made to engage the services of a specialist to elucidate it.

The quantity of timber extracted from the forests was 458,000 cubic feet as against 303,000 cubic feet in the preceding year, 4,296 tons of sandalwood were extracted during the year. Sales of sandalwood realised 10¼ lakhs, the average rate per ton was R449 against R471 in the preceding year. Including a proportionate share of the divisional expenditure the cost of extraction and preparation of sandalwood amounted to R2,66,000.

The financial results of the year's working, exclusive of revenue and expenditure on account of sandalwood, were—revenue 5½ lakhs, expenditure 2½ lakhs and surplus 3 lakhs.

60. *Jodhpur (Marwar State).*—No alteration in the area of 347 square miles under forest conservancy was made during the year. Progress was made in surveys, 34 square miles on the 4″ scale being mapped, making a total of 71 square miles surveyed up to date. The question of bringing the forests under regular working-plans is receiving consideration, the necessary data for compilation of plans for some areas being now nearly complete.

There was a marked decrease in forest offences, the number of cases compounded being 249 as against 496 cases last year. It was a good year and the tendency to pilfer the forests was proportionately diminished.

Fire protection was less satisfactory than in previous years, 23 fires occurring, the area burnt over being 8,623 acres as compared with 9 fires burning less than 1 square mile in 1902-03. The fires which spread from the adjoining forests of the Meywar State caused most damage and it is only by mutual arrangement that such disasters can in future be prevented.

The outturn of timber and fuel was considerably greater than in 1902-03, 31,573 cubic feet of timber and 5,04,283 cubic feet of fuel being extracted as compared with 20,576 cubic feet and 307,127 cubic feet, respectively. The value of minor forest produce removed also increased from R7,968 to R9,571.

The financial results of the year's working were satisfactory, the gross receipts amounting to R23,676 as against R19,912 in the preceding year. The surplus increased from R4,770 to R6,544.

Bhopawar.—The total forest area managed by the Forest Department in the Bhopawar Agency amounted to 1,640 square miles at the close of the year, but of this only 600 square miles in the Barwani State appear to be reserved forest. There are no regular working-plans but simple plans of operation are in force for most States.

Forest offences are few; the forests are all protected from fire and the measures adopted, which range from warnings to the population to regular systematic protection, appear to be successful.

The financial results of the year's working show that the gross revenue was R79,313 and surplus R24,632 as compared with R73,710 gross revenue and R21,825 surplus in the preceding year.

Free grants and concessions of the estimated value of R15,502 were made during the year.

61. *Rewa Kantha Agency.*—

(*a*) *Rajpipla State.*—About ⅔rds of the entire area of the State consists of tracts covered more or less with forests and of these the more valuable areas have been reserved to the extent of 409 square miles. Babul plantations of 2⅛ square miles have also been created. The preparation of working-plans has been taken in hand and, when these are ready, the reserved forests

will be managed strictly in accordance with their prescriptions. Teak is the most valuable timber found in the forests but extensive fellings for sleepers and large concessions during famine times have led to parts of the State forests being heavily overworked and in some cases ruined. The forests are said to be gradually improving and when systematic working is introduced the progress will no doubt be rapid.

The gross revenue for the year amounted to R68,696 with a surplus of R30,901, as compared with revenue R44,765 and surplus R19,852 in 1902-03.

(*b*) *Lunawada State.*—The administration report does not give much information in regard to 'Forests.' It appears there are 134 so called reserved forests, the areas of which are not stated. No details of systematic working or protective measures are afforded though it seems recognized that the felling of immature trees is prejudicial both to the forests and to the Treasury, forest revenue being an important asset of the State. Twenty-one fires occurred during the year some of which are ascribed to the inveterate superstition of the Koolis (Bhils) who burn the hills to fulfil vows made in time of sickness or misery.

The revenue derived from the forests was R7,047 as against R2,287 in the previous year.

(*c*) *Sunth State.*—This State possesses very valuable, though scattered forests but on account of their remoteness from the railway, and want of suitable communications, they do not yield much revenue. During the year the gross revenue obtained was R7,985 and surplus R7,331 as against a deficit of R1,523 in 1902-03.

(*d*) *Chhota Udepur State.*—The forests yield a considerable revenue to the State but apparently they are not worked with much attempt at systematic management. The different areas are classified as "Reserved" and "Protected" forests. The "reserved" blocks number 19 and cover 159 square miles, and there are 14 "protected" blocks covering 66 square miles. The revenue for the year was R10,792, and duties levied in connection with the extraction of minor produce yielded R22,765.

62. *Travancore.*—The total area of reserved forests under the control of the Forest and Cardamom Departments at the close of the year was 2,154 square miles. There were also 239 square miles of reserved lands and 33 square miles of fuel reserves.

Some progress was made in demarcation and survey of boundaries, and preliminary working-plans to be revised two years hence are in force.

Systematic fire protection over 1,903 square miles was successful, no fires of a serious kind occurring during the year.

The construction of roads and buildings was not overlooked and plantations of teak, rubber and casuarina were maintained over an area of 2,416 acres while experimental cultivation of camphor, manilla and other exotics proceeded.

The gross revenue of the year amounted to 6¾ lakhs with 2 lakhs surplus, as against 6½ lakhs and 1¾ lakhs surplus in the preceding year.

The State possesses valuable forests, the revenue from timber alone being 6 lakhs. The staff includes a Conservator with Deputy and Assistant Conservators and with continued systematic management the revenue will doubtless largely expand.

63. *Southern Waziristan.*—It is interesting to learn that good progress in arboricultural operations was made in Southern Waziristan, some 37,000 shade trees—willows, silver poplar and shisham—were planted of which the majority are thriving. These good results are chiefly due to the keen interest the Waziris are now beginning to take in tree planting.

64. *Baroda.*—The area of reserved forests at the close of the year amounted to about 700 square miles. The area of unreserved forests is unknown. The reserved forests had complete rest for 13 years prior to last year when their working was resumed. Plans have been prepared for the next 20 years. In these plans are prescribed the sequence of fellings, the areas to be regenerated, the areas set aside for grazing and the measures to be adopted to protect the forests from fire. The unreserved forests are partly under the control of the Forest Department and partly under that of the Revenue Department. During the year the forest revenue amounted to R89,574 and the expenditure to R54,607, as compared with a revenue of R54,183 and expenditure of R51,999 in the preceding year.

APPENDIX I.

[*Vide* paragraph 1.]

Area of reserved and leased forests.

Province	Area, in square miles.				Remarks.
	At commencement of year.	Added in 1903-4.	Excluded in 1903-4.	At close of 1903-4.	
Bengal	5,961	74	21	6,014	(*a*) Includes 153 square miles of *leased* forests.
United Provinces	4,071	33	56	(*a*)4,048	(*b*) and (*c*) 204 square miles of reserved and *leased* forests shown under *unclassed* forests in the Report for 1902-3 are now included in these figures.
Punjab	(*b*)2,294	(*c*)215	53	(*d*)2,456	
Burma	19,708	445	114	(*e*)20,039	
Central Provinces including Berar.	(*f*)22,840	1,513	(*g*)1,681	22,672	(*d*) Includes 539 square miles of *leased* forests.
Assam	3,778	...	...	3,778	(*e*) Wrongly shown as 20,038 square miles in the Report for 1903-4.
Coorg	242	168	...	410	
North-West Frontier	234	...	...	234	(*f*) and (*g*) Increased by 1 square mile to make the figures tally with those of 1902-3.
Ajmer	142	...	...	142	
Baluchistan	203	5	...	208	(*h*) Includes 692 square miles of *leased* forests.
Andamans	156	...	...	156	(*i*) Includes 10 square miles due to revision of areas in Northern and Sindh Circles.
Total Bengal	59,629	2,453	1,925	(*h*)60,157	
„ Madras	17,657	272	6	17,923	(*j*) Includes 217 square miles of *leased* forests.
„ Bombay	13,464	(*i*) 56	33	(*j*)13,487	(*k*) Includes 909 square miles of *leased* forests.
Grand Total 1903-4	90,750	2,781	1,964	(*k*)91,567	(*l*) Includes 699 square miles of *leased* forests.
„ „ 1902-3	89,424	2,131	805	(*l*)90,750	

APPENDIX II.

[*Vide* paragraphs 2 and 3.]

Area of all forest lands.

Province. Name.	Area in square miles.	Forest area, in square miles. Reserved.	Protected.	Unclassed State.	Total.	Proportion of Forests to whole area of Province.	Remarks.
Bengal	152,453	6,014	3,567	4,033	13,614	8·9	(*a*) and (*b*) Include 153 square miles of *leased* forests, but exclude 9,363 square miles of protected forests in Naini Tal District.
United Provinces	105,165	(*a*)4,043	30	77	(*b*)4,155	3·9	(*c*) and (*d*) Include 539 square miles of *leased* forests.
Punjab	97,223	(*c*)2,456	4,909	1,914	(*d*)9,279	9·5	
Burma	162,530	(*e*)20,039	...	103,174	(*f*)123,213	75·8	(*e*) and (*f*) Wrongly shown as 20,038 and 123,212, respectively, in the Report for 1903-4.
Central Provinces including Berar.	104,170	22,672	...	4	22,676	21·8	
Assam	48,961	3,778	...	18,509	22,287	45·5	
Coorg	1,582	410	39	(*g*)121	570	36·0	(*g*) Reserved lands.
North-West Frontier	13,276	234	...	...	234	1·8	
Ajmer	2,646	142	...	6	148	5·6	
Baluchistan	(*h*)9,403	209	...	...	208	2·2	(*h*) British Baluchistan only.
Andamans	3,143	156	...	1,795	1,951	62·1	South Island only.
Total Bengal	700,552	60,157	8,545	129,633	198,335	28·3	
Madras	144,389	17,923	...	(*i*)1,636	19,559	13·5	(*i*) Reserved lands.
Bombay	(*j*)123,883	(*k*)13,487	(*l*)1,320	...	14,807	12·0	(*j*) Includes Sindh. (*k*) Includes 317 square miles of leased forests.
Grand Total 1903-4	967,824	(*m*)91,567	(*n*)9,865	131,269	232,701	24·0	(*l*) and (*n*) Include 439 square miles of *leased* forests. (*m*) Includes 909 square miles of *leased* forests.
„ „ 1902-3	966,073	(*o*)90,750	9,519	116,555	216,824	22·4	(*o*) Includes 699 square miles of *leased* forests.

APPENDIX III.

[*Vide* paragraphs 4 and 5.]

Progress in Forest Settlements.

Provinces.	Areas already settled at the commencement of the year.			Areas finally settled during the year.						Area undergoing settlement.								
				Area.			Expenditure incurred.			At commencement of the year.			Taken in hand during the year.			Expenditure incurred during the year.		
	Reserved forests.	Protected forests.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protected.	Total.	Reserved.	Protec ed.	Total.	Reserved.	Protected.	Total.
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	R	R	R	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	R	R	R
Bengal	5,912	...	5,912	72	...	72	...	...	...	156	...	156	18	...	18	...	...	...
United Provinces	3,918	30	3,948	15	...	15	...	...	...	14	...	14	2	...	7	...	...	...
Punjab	2,673	4,221	6,894	...	12	12	...	...	...	1	206	206	15	...	15	...	...	...
Burma	19,719	...	19,719	309	...	309	16,554	...	16,554	861	...	861	1,185	...	1,185	16,672	...	16,672
Central Provinces including Berar.	22,641	...	22,641	10	...	10	...	...	...	9	...	9	13	...	13	...	...	...
Assam	3,778	...	3,778	...	...	...	...	...	...	57	...	57	6	...	6	...	...	...
Coorg	212	...	212	169	...	169	821	...	821	121	...	121	...	...	...	...	...	...
North-West Frontier	234	...	234	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baluchistan	203	...	203	5	...	5	...	...	...	...	...	...	...	...	...	...	...	...
Andamans	156	...	156	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Bengal	58,906	4,251	63,157	580	12	592	17,375	...	17,375	1,519	206	1,725	1,279	...	1,279	16,672	...	16,672
,, Madras	17,694	...	17,694	254	...	254	(a) 628	...	*(a) 628	859	...	859	235	...	235	(b) 2,809	...	(b) 2,809
,, Bombay	13,273	585	13,858	25	91	116	...	...	...	29	...	29	5	...	5	(c) 10,312	...	(c) 10,312
Grand Total, 1903-4	89,873	5,536	95,409	859	103	962	18,003	...	18,003	2,117	206	2,622	1,519	...	1,519	29,316	...	29,316
,, ,, 1902-3	83,789	5,493	89,282	1,711	...	1,711	6,934	...	6,934	2,766	205	2,971	1,183	...	1,183	34,116	...	34,116

N.B.—The total expenditure on Forest Settlements, compensation of lands, etc., as shown in Form No. 61 of Provincial Forest Reports for 1903-04 amounted to R72,259 and according to Form No. 47 from which the above table has been compiled, R47,919. Berar and Northern Circle, Bombay, are principally responsible for the difference of R20,374.

(a) Excludes R 6,933 debited to other than Forest Accounts.
(b) ,, ,, 20,762. ,, ,, ,, ,, ,,
(c) ,, ,, 10,475 ,, ,, ,, ,, ,,

APPENDIX IV.

[*Vide* paragraph 6.]

Demarcation and Maintenance of Boundaries.

Provinces.	Circle.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries not demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year	
									On new work.	On repairs.
		Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	R	R
Bengal	.....	102	3,220	100	3,422	1	1,887	5,310	3,473	11,390
United Provinces	Central Circle	...	208	2,356	2,564	...	698	3,262	19	1,378
	Oudh "	...	424	711	1,135	17	273	1,425	42	1,168
	School "	41	342	442	825	125	291	1,241	956	1,147
	Total	41	974	3,509	4,524	142	1,262	5,928	1,017	3,693
Punjab	.....	339	2,876	7,197	10,412	3,852	1,198	15,462	1,950	3,798
Burma	Pegu Circle	53	546	2,037	2,636	225	1,037	3,948	1,084	1,855
	Tenasserim Circle	39	791	2,358	3,188	10	592	3,790	1,060	6,479
	Northern "	148	1,432	1,558	3,138	40	540	3,718	1,187	2,976
	Southern "	273	482	2,641	3,396	431	463	4,290	3,866	1,946
	Total	513	3,251	8,644	12,408	706	2,632	15,746	7,137	13,256
Central Provinces	Northern Circle	39	7,215	3,812	11,066	...	1,428	12,494	171	5,313
	Southern "	18	11,190½	1,288	12,496½	59	949	13,504½	416	3,570
	Berar "	40½	1,068½	5,068	6,176½	13	339½	6,529	1,862	867
	Total	97½	19,473½	10,168	29,739½	72	2,716½	32,527½	2,449	9,750
Assam	.....	11	1,090	66	1,167	4	1,608	2,779	124	2,376
Coorg	.....	18	...	289	307	173	54	534	669	129
North-West Frontier	.....	...	100	649	749	...	163	912	...	1,046
Ajmer	.....	...	...	244	244	...	158	402	207	20
Baluchistan	.....	11	31	272	314	...	77	391	...	...
Andamans	.....	...	...	42	42	29	116	187	...	...
Total Bengal	.....	1,132½	31,015½	31,180	63,328½	4,979	11,871½	80,178½	17,026	45,458
Madras	Northern Circle	375	1,839	6,750	8,964	551	518	10,033	5,004	825
	Central "	360	7,509	6,840	14,709	490	260	15,399	4,303	1,335
	Southern "	270	549	7,860	8,679	681	957	10,317	6,655	2,108
	Total	1,005	9,897	21,450	32,352	1,723	1,675	35,749	15,962	4,268
Bombay	Northern Circle	187	1,546	2,417	4,150	442	426	5,018	5,348	1,432
	Central "	203	3,784	13,597	17,584	5,018	861	23,463	1,922	1,115
	Southern "	845	282	1,480	2,107	12,061	699	14,867	9,814	1,049
	Sindh "	14	1,479	487	1,980	...	591	2,571	...	...
	Total	749	7,091	17,981	25,821	17,521	2,577	45,919	17,084	3,596
Grand Total 1903-04	.....	2,886½	48,003¾	70,611	121,501¼	24,222	16,123¾	161,346¾	50,072	68,322
" 1902-03	.....	3,539	47,953	62,551	114,043	23,752	15,181	152,956	52,121	38,529

N.B.—Boundaries include, beside the outer perimeter, the limits of enclosures of private and other lands within the forests, but not the limits of sub-division such as blocks, compartments and coupes.

APPENDIX V.

[*Vide* paragraphs 7 to 11.]

Forest Areas Surveyed and under Survey.

Provinces.	4″=1 mile.		6″=1 mile.		16″=1 mile.		Total of detail survey on 4″ scale and over.		Expenditure on surveys including mapping and publishing charges.
	Outturn.	Cost rate.	Outturn.	Cost rate.	Outturn.	Cost rate.	1903-4.	Total up to date.	
1	2	3	4	5	6	7	8	9	10
	Sq. miles.	₹	Sq. miles.	₹	Sq. miles.	₹	Sq. miles.	Sq. miles.	₹
Bengal	310	64	...	...	...	...	310	1,991 (a)	26,010
United Provinces	36	30	...	...	...	...	36	3,977 (b)	2,129
Punjab	209	25	...	...	...	...	209	3,409 (c)	7,791
North-West Frontier	...	...	...	...	...	...	...	185	2,745
Burma	1,108	118	...	...	...	...	1,108	10,045 (d)	2,05,177
Central Provinces including Berar	2	58	...	...	...	...	2	18,597 (e)	6,614
Assam	160	85	...	...	...	...	160	818	30,955
Ajmer	...	...	...	...	...	...	...	(f)144	679
Total for Bengal	1,825	...	...	...	...	...	1,825	39,166	2,62,100
Madras	801	102	...	...	...	...	801	12,318 (g)	1,07,701
Bombay	576	68	158	139	...	...	734	10,371 (h)	71,193
Totals for Madras and Bombay	1,377	...	158	139	...	...	1,535	22,689	1,78,894
Grand Total in 1903-04	3,202	...	158	139	...	...	3,360	61,855	4,60,994 (i)
" " " 1902-03	3,816	65	240	130	6	137	4,062	59,363	4,58,324 (j)

(a) 20 square miles survey overlap omitted not being accounted for.
(b) 2 " " shown less in previous year return.
(c) 102 " " in excess in previous return, corrected from later figures.
(d) Area revised throughout.
(e) 439 square miles in excess in previous return.
(f) Not shown in last return through oversight.
(g) Area altered owing to exclusion of non-forest areas.
(h) 95 square miles shown in excess in previous return.
(i) Excludes headquarters charges, *viz.*, ₹34,407.
(j) " " " " ₹34,653.

APPENDIX VI.

[*Vide* paragraphs 7 to 11.]

Details of Forest Survey Operations.

Province.	Forest Surveyed.	Nature of Survey Operations. 4" Detail Survey. Area.	4" Detail Survey. Cost rate.	Triangulation. Area.	Triangulation. Cost rate.	Traversing. Area.	Traversing. Cost rate.	Expenditure including mapping and publishing charges. Forests.	Survey of India.	Total.	Remarks.
		Sq. m.	R	Sq. m.	R	L. M.	R	R	R	R	
Bengal	Kalimpong	208	75	20	28	13	11	11,988	5,138	17,126	Includes mapping and publishing charges. (a) 108 linear miles of boundary survey
	Darjeeling	11		...	...	...	...	818	350	1,168	
	Kurseong	...	...	..	...	...	...	172	74	246	
	Singhbhum	91	37	201	4	...	...	3,747	1,606	5,353	
	Ranchi	...	...	...	...	12	21	112	48	160	
	Koderma	...	...	...	...	...	...	1,213	...	1,213(a)	
	Angul	...	...	236	3	...	...	521	223	744	
	Total	310	64	457	5	25	16	18,571	7,439	26,010	
Assam	Kamrup	92	85	285	6	184	40	9,388	4,023	13,411	
	Garo Hills	68		604		93		10,373	4,446	14,819	
	Nowgong	...	...	65		9		1,907	818	2,725	
	Total	160	85	954	6	286	40	21,668	9,287	30,955	
United Provinces. Central Circle	Kumaun	...	...	...	...	...	...	807	346	1,153	Includes drawing of 2nd edition of Kumaun and Garhwal maps. (b) 67 linear miles of boundary survey.
	Naini Tal	33	30	..	...	...	...	193	...	193	
	Ganges	3		...	...	...	...	577	46	623	
	Garhwal	...	...	...	...	...	...	25	...	25(b)	
Oudh	Pilibhit	...	...	...	...	...	...	72	...	72	
	Kheri	...	...	...	...	2	32	63	...	63	
	Total	36	30	...	...	2	32	1,737	392	2,129	
Punjab	Lahore	26	25	...	...	...	...	912	391	1,303	(c) Also 1,756 linear miles of boundary survey in Lahore and Jhelum. Includes computation, mapping and publishing charges.
	Jhelum	183		...	...	80	4	2,947	1,263	4,210(c)	
	Chenab	...	...	...	...	...	...	375	161	536	
	Rawalpindi	...	...	...	...	...	...	154	66	220	
	Guzrat	...	...	...	...	...	...	3	1	4	
	Chamba	...	...	...	...	...	...	535	534	1,069	
	Shahpur	...	...	...	...	...	...	122	53	175	
	Total	209	25	...	...	80	4	5,048	2,469	7,517	
North-West Frontier	Hazara	...	...	...	...	...	...	1,400	600	2,000	Includes computation, mapping and publishing charges.
	Dungagalli and Khaupur.	...	...	274	2	...	...	521	224	745	
	Total	..1	...	274	2	...	...	1,921	824	2,745	
Central Provinces. Northern Circle.	Mandla	...	...	...	...	...	...	2,009	861	2,870	Includes computation, mapping and publishing charges.
	Betul	...	...	...	...	...	...	88	38	126	
	Hoshangabad	2	58	...	...	...	...	257	110	367	
Southern Circle.	Chanda	...	...	...	...	...	...	2,205	945	3,150	
	Chindwara	...	...	...	...	...	...	34	15	49	
	Bilaspur	...	...	...	...	...	...	36	16	52	
	Total	2	58	...	...	...	...	4,629	1,985	6,614	
Burma. Southern Circle.	Pyinmana	...	...	...	...	...	...	34	12	46	Includes computation, mapping and publishing charges. (d) Examination survey.
	Mandalay	319	...	...	...	...	...	19,475	8,346	27,821	
	Ruby Mines	77	...	...	...	...	...	7,317	3,136	10,453	
	Yaw	18	...	60	...	75	...	2,246	963	3,209	
	Minbu	...	...	...	...	...	...	42	18	60	
Northern Circle.	Katha	42	...	430	...	781	...	12,889	5,524	18,413	
	Bhamo	...	...		...	...	...	760	326	1,086	
	Mu	...	...	370	...	379	...	4,543	1,947	6,490	
	Myitkina	376	...	...	...	52	...	35,337	15,145	50,482	
	Upper Chindwin	61	...	550	...	629	...	14,004	6,001	20,005	
	Lower "	98	...	...	...	...	...	33,015	14,149	47,164	
Tenasserim Circle.	Ataran	...	...	...	...	...	...	1,025	439	1,464	
	West Salween	...	...	...	...	...	...	45	20	65(d)	
	Thaungyin	...	...	...	...	...	...	936	401	1,337	
Pegu Circle	Pegu	...	...	...	...	...	...	69	29	98	
	Thayetmyo	117	...	...	...	192	...	11,815	5,064	16,879	
	Prome	...	...	...	...	...	...	73	32	105	
	Total	1,108	118	1,410	8	2,103	27	1,43,625	61,552	2,05,177	

APPENDIX VI—*continued.*

Details of Forest Survey Operations—*continued.*

Province.	Forest surveyed.	Nature of Survey Operations.						Expenditure including mapping and publishing charges.*			Remarks.
		4" Detail Survey.		Triangulation.		Traversing.					
		Area.	Cost rate.	Area.	Cost rate.	Area.	Cost rate.	Forest.	Survey of India.	Total.	
		Sq. m.	R	Sq. m.	R	L. m.	R	R	R	R	
Jubal Tarock	Jubal Tarock	...	...	...	...	...	...	192	82	274	Mapping and publishing charges.
Ajmer-Merwara	Ajmer-Merwara	...	...	...	...	...	...	679	...	679	Ditto
Madras — Northern Circle	Ganjam	...	...	...	...	91	...	75,391	32,310	1,07,701	
	Godavari	192	...	1,000	...	109	...				
	Kurnool and Kistna.	332	...	289	...	26	...				
Madras — Central Circle	Trichinopoly	...	...	150	...	...	...				
	Chingleput	...	...	70	...	...	...				
Madras — Southern Circle	South Canara	177	...	423	...	9	...				
	North Coimbatore.	100	...	...	...	32	...				
	Total	801	102	1,937	9	247	20	75,391	32,310	1,07,701	
Bombay — Northern Circle	South Thana	764†	139	...	...	...	...	49,835	21,358	71,193	† On 8-inch scale.
Bombay — Central Circle	Khandesh and Satara.	576	68	677	15	...	...				
	Nasik	82‡	139	...	...	...	...				
	Total	734	...	677	15	...	...	49,835	21,358	71,193	
	Forest Survey Head-quarters.	...	...	...	...	...	...	...	...	34,407	
	Grand Total, 1903-04.	3,360	...	5,769	...	2,748	...	...	...	4,95,401	‡ Includes R34,653 on account of head-quarters charges.
	Grand Total, 1902-03.	3,816	...	5,554	...	2,962	...	...	...	4,92,077‡	

* From 1st July 1903 to 30th June 1904.

APPENDIX VII.

[*Vide* paragraphs 12 to 14.]

Areas brought under the control of sanctioned Working-plans up to 30th June 1904 in the provinces outside the Madras and Bombay Presidencies.

Province.	Forest Area, in square miles.				Area for which Working-Plans prepared and sanctioned up to 30th June.	Proportion of Forest area under sanctioned Working-plans.
	Reserved.	Protected.	Unclassed State.	Total.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Sq. miles.	Per cent.
Bengal	6,014	3,567	4,033	13,614	4,394	32
United Provinces	4,048	30	77	4,155	3,728	90
Punjab	2,456	4,909	1,914	9,279	2,606	28
Burma	20,039	...	103,174	123,213	3,266	3
Central Provinces including Berar	22,672	...	4	22,676	9,486	42
Assam	3,778	...	18,509	22,287	533	2
Coorg	410	39	121	570	178	31
North-West Frontier	234	...	...	234	76	32
Ajmer	142	...	6	148	140	95
Baluchistan	208	...	...	208	...	...
Andamans	156	...	1,795	1,951	...	...
Grand Total in 1903-04	60,157	8,545	129,633	198,335	*24,407	12
„ „ „ 1902-03	59,629	8,486	114,757	182,872	25,851	14

* At the beginning of the year this figure stood at 25,851 square miles which was reduced by 2,575 square miles owing to transfers, abandonment of areas, etc., leaving a balance of 23,276 square miles, which added to 1,131 square miles of newly sanctioned Working-plan gives a total of 24,407 square miles. See Appendix IX.

APPENDIX VIII.

[*Vide* paragraphs 12 to 14.]

Progress in Working-plans in the provinces outside the Madras and Bombay Presidencies during the year 1903-04.

Province.	Preliminary proposals submitted to the Inspector-General of Forests for Working-Plans.		Completed plans submitted for opinion and remarks of Inspector-General of Forests.		Plans finally sanctioned by Local Governments on recommendation of the Inspector-General of Forests.	
	No.	Area for which prepared.	No.	Area for which prepared.	No.	Area for which prepared.
1	2	3	4	5	6	7
		Sq. miles.		Sq. miles.		Sq. miles.
Bengal	2	4,147 (*a*)	1	3,839 (*b*)	1	110
United Provinces—Central Circle	3	21 (*c*)	...	...	...	...
United Provinces—Oudh ,,	...	...	...	...	...	...
United Provinces—School ,,	1	73 (*d*)	...	...	...	278 (*i*)
Punjab	...	...	..	...	...	...
Burma—Pegu Circle	1	20	...	...	...	...
Burma—Tenasserim Circle	...	...	1	449	1	449
Burma—Northern ,,	1	539	...	...	...	...
Burma—Southern ,,	2	645 (*e*)	...	...	3	294
Central Provinces—Northern ,,	3	1,159	..	...	...	...
Central Provinces—Southern ,,	1	225(*f*)	...	...	...	...
Central Provinces—Berar ,,	...	...	...	...	...	...
Assam	2	909 (*g*)	...	...	...	...
Coorg	...	...	...	...	...	...
North-West Frontier	2	82	...	...	...	...
Ajmer	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...
Andamans	...	...	...	...	...	...
TOTAL	18	7,820	2	4,288	5	1,131 (*h*)

(*a*) Aggregate area of Buxa Forest Division (308 square miles) and old Sundarbans Working-plan (3,839 square miles) under revision.

(*b*) Area of old Sundarbans Working-plan under revision.

(*c*) Aggregate area of the Lansdowne (18 square miles), Naini Tal Municipal (3 square miles) and Naini Tal Cantonment (1 square mile) forests, under revision.

(*d*) Area of old Tehri-Garhwal leased deodar Working-plan under revision.

(*i*) Area of revised Debra Dun Working-plan actually sanctioned in 1904-05.

(*e*) Aggregate area of the Tanegdwingyi (397 square miles) and Nahan (248 square miles) forests. The latter area was included in column 2 of Appendix VIII for 1902-03, but has been included again this year as a revised Preliminary Working-plan Report was received during the year.

(*f*) Area of East Ranch Working-plan under revision.

(*g*) Aggregate area of the Nambor Reserve (387 square miles) and the old Goalpara Working-plan (522 square miles) under revision.

(*h*) Excludes area of old Kothkai-Kotgaru (13 square miles) and Shahdera cum Jugian (3 square miles) Working-plan revised during the year and 701 square miles of Jubal Working-plan not under the control of the Forest Department.

N. B.—The information recorded in columns 2 and 3 of the statement has been taken from the registers maintained in this office. The figures do not agree with those supplied in column 5 of Form 10 of the Annual Reports, the latter of which do not agree with the details furnished in the body of the Reports.

APPENDIX IX.

[*Vide* paragraphs 12 to 14.]

Comparative statement of progress made in Working-plans.

Province.		Areas for which Working-Plans have been completed and sanctioned. At commencement of the year.	Areas for which Working-Plans have been completed and sanctioned. During the year.	Areas for which Working-Plans are being compiled. At commencement of the year.	Areas for which Working-Plans are being compiled. Taken in hand during the year.	Areas for which Working-plans have still to be taken in hand.	Total forest area, as in Form No. 46.	Remarks.
1		2	3	4	5	6	7	8
		Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	
Bengal		(a)4,284	110	1,140	188	7,892	13,614	(a) At the end of 1902-03 the area stood at 4,296 square miles. The decrease of 11 square miles is due to exclusions from the Sundarbans Forest Division.
United Provinces	Central Circle	(b)1,567	...	...	18	363	1,948	(b) The decrease compared with the figures of 1902-03 is due to 4 square miles added during the year to the Working-plans for Garhwal and Ganges Forest Divisions, while 18 square miles (Lansdowne Working-plans) under revision have been transferred from column 2 to column 5.
	Oudh	(c)1,292	...	...	...	...	1,326	
	School	(d)591	(e)278	...	73	12	881	
Punjab		(f)2,606	...	1,480	185	5,007	9,279	
Burma	Pegu Circle	1,019	...	340	196	14,319	26,458	(c) The difference of 23 square miles compared with the figures of 1902-03 is due to 28 square miles of the Kheri Working-plans excluded during the year while 5 square miles were added during the year to the Working-plans of the Bahraich Division.
	Tenasserim Circle	738	449	374	436	29,670	31,668	
	Northern "	36	...	...	...	(g)27,596	27,632	
	Southern "	(h)730	294	287	374	(i)35,670	37,355	
Central Provinces	Northern Circle	(j)3,784	...	2,354	206	1,426	9,248	(d) Decrease compared with last year's figures due to transfer of 278 square miles from column 2 to column 3.
	Southern "	(k)4,977	...	41	131	600	9,486	
	Berar "	725	...	828	...	2,388	3,942	(e) Area of revised Dehra Dun Working-plans actually sanctioned in 1904-05.
Assam		533	...	...	1	3,244	22,287	(f) Last year's area has been decreased by 37 square miles owing to transfer from column 2 to column 6 of 28 square miles (Baramur W. C.) erroneously shown in 1901-02 as existing under Working-plans 2 square miles added during the year, while 4 square miles of the Bashahr Working-plans were excluded during the year and 7 square miles, being the area of the Simla Municipal Catchment area forests, transferred from column 2 to column 6, 13 square miles (Kotkhai-Kotgurn Working-plans) and 3 square miles (Shahderasem-Jugian Working-plans) revised during the year have already been included in column 2.
Coorg		178	...	...	...	392	570	
North-West Frontier		76	...	82	76	...	234	
Baluchistan		...	...	...	...	208	208	
Andamans		...	...	...	...	1,951	1,951	
Ajmer		(l)140	...	...	...	8	148	
Total Bengal		23,276	1,131	6,926	1,894	1,30,747	1,98,335	(g) Includes 839 square miles of the Kindat, Kampat, Tatkon, Yu (part), Matu Bon and Waye reserves for which a preliminary Working-plan report was received during the year.
Madras	Northern Circle	617	708	362	864	4,268	6,819	(h) Last year's area has been decreased by 1 square mile owing to revision of area.
	Central "	1,328	307	1,657	906	3,067	7,265	(i) Includes 397 square miles of the Taungdwingyi forests for which a revised Preliminary Working-plans Report was received during the year.
	Southern "	2,086	57	...	...	3,332	5,475	
Total		4,031	1,072	2,019	1,770	10,667	19,559	(j) Last year's area has been decreased by 11 square miles owing to disafforestment of land from the Hoshangabad Forest Division.
Bombay	Northern Circle	1,285	...	65	79	238	2,819	(k) Decrease of 2,198 square miles compared with last year's figures is due to abandonment of Working-plans.
	Central "	889	496	590	678	2,582	6,358	(l) The decrease compared with last year's figures is due to transfer of 2 square miles from column 2 to column 6.
	Southern "	889	...	543	2	3,629	5,063	
	Sindh "	409	202	421	...	(m)35	1,067	(m) This figure has been reduced by 6 square miles so as to arrive at the total of 1,067 square miles which is apparently correct.
Total		3,472	698	1,619	759	6,484	14,807	

N. B.—The Madras and Bombay figures in columns 2 and 3 have been taken from the statements given in the annual reports, but it is not known what areas have been actually sanctioned.

APPENDIX X.

[*Vide* paragraphs 15 to 19.]

Expenditure on Communications and Buildings.

Provinces.	New Works.		Repairs.		Other Works.	Total.
	Buildings.	Roads.	Buildings.	Roads.		
	₹	₹	₹	₹	₹	₹
Bengal	43,801	18,058	12,094	9,220	3,838	87,011
United Provinces	29,460	17,935	20,125	30,618	10,696	1,08,934
Punjab	10,508	4,480	4,800	3,811	4,724	28,323
Burma	41,321	56,561	25,675	10,592	8,503	1,41,652
Central Provinces including Berar	32,419	3,340	14,729	15,360	5,686	73,034
Assam	4,373	649	8,828	4,016	1,083	18,951
Coorg	768	650	850	981	203	3,452
North-West Frontier	1,140	351	480	318	36	2,325
Ajmer	392	316	82	63	584	1,437
Baluchistan	63	...	106	...	...	259
Andamans	1,065	27,665	451	162	...	29,343
Total, Bengal	1,65,410	1,31,505	87,310	75,143	35,353	4,94,721
„ Madras	22,167	17,793	23,603	24,472	11,032	99,067
„ Bombay	37,433	21,321	7,826	13,979	5,686	86,245
Grand Total, 1903-04	2,25,010	1,70,619	1,18,739	1,13,594	52,071	6,80,033
„ „ 1902-03	2,07,796	1,03,990	1,16,320	91,601	48,851	5,70,558

APPENDIX XI.

[*Vide* paragraph 20.]

Breaches of Forest Rules.

Province.	Number of cases decided by the courts.	Number of cases compounded.	Total.	Proportion of convictions to total number of cases decided by the courts.
				Per cent.
Bengal	270	2,570	2,840	86·3
United Provinces	137	719	856	81·0
Punjab	902	3,276	4,178	85·6
Burma	722	1,834	2,556	81·6
Central Provinces including Berar	339	5,569	5,908	81·1
Assam	84	221	305	75·0
Coorg	6	37	43	83·3
North-West Frontier	39	496	535	94·9
Ajmer	143	234	377	95·8
Baluchistan	65	115	180	86·2
Andamans	21	...	21	90·5
Total Bengal	2,728	15,071	17,799	84·2
Madras	6,705	12,704	19,409	91·0
Bombay	1,495	12,934	14,429	84·3
* Grand Total 1903-04	10,928	40,709	51,637	88·4
* Grand Total 1902-03	11,022	36,890	47,912	86·9
* Grand Total 1901-02	11,601	34,497	46,098	86·9

* Includes cases which were pending at the close of the previous year.

APPENDIX XII.

[*Vide* paragraph 20.]

Breaches of Forest Rules.

Province.	Cases taken into Court.				Compounded cases.				Cases in which the offenders remained undetected.				Totals of each class of offence.				
	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Injury to fire-protected forests by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission in tracts in which grazing is prohibited.	Other offences.	Grand total of cases.
Bengal	35	170	25	95	5	1,638	777	103	64	3	...	6	103	1,808	802	210	2,923
United Provinces	9	49	59	21	11	423	263	32	20	32	2	1	40	504	324	54	922
Punjab	45	567	267	192	15	1,499	1,732	22	132	46	1	1	192	2,112	2,000	180	4,484
Burma	25	500	26	171	3	1,069	87	692	37	34	...	3	65	1,603	113	866	2,647
Central Provinces including Berar.	52	147	72	74	198	3,538	1,671	187	494	184	5	...	744	3,869	1,748	261	6,622
Assam	3	59	3	21	1	142	7	71	8	1	...	...	12	202	10	92	316
Coorg	1	2	7	1	...	7	17	14	...	...	...	...	1	9	18	15	43
North-West Frontier	5	22	4	3	1	219	246	...	23	12	5	...	29	283	255	3	570
Ajmer	3	125	12	4	1	180	50	3	8	20	...	...	12	325	62	7	405
Baluchistan	3	45	15	4	...	3	112	...	6	1	1	...	9	49	128	4	190
Andamans	...	21	...	...	...	...	...	...	...	...	...	...	...	21	...	...	21
Total Bengal	181	1,707	454	547	231	8,715	4,962	1,134	792	333	14	11	1,207	10,785	5,460	1,692	19,144
Madras	49	3,435	2,596	397	17	8,462	4,759	601	495	729	310	42	561	12,626	7,656	1,040	21,883
Bombay	196	674	509	172	220	4,468	7,515	1,024	2,793	1,723	99	78	3,209	6,865	8,111	1,274	19,462
Grand Total, 1903-4	426	5,816	3,589	1,116	471	21,675	17,227	2,759	4,080	2,785	414	131	4,977	30,276	21,230	4,006	60,489
" " 1902-3	456	5,772	3,518	1,186	313	20,924	14,993	2,282	3,328	2,574	423	140	4,127	29,270	18,939	3,608	55,944
" " 1901-2	459	6,716	3,630	1,008	473	19,964	13,310	2,307	3,609	2,662	383	114	4,541	29,372	17,353	3,424	54,690
" " 1900-1	355	6,877	3,647	1,101	294	19,049	12,780	2,011	2,661	2,823	676	117	3,310	28,749	17,053	3,229	52,341

* Includes only the new cases of the year; not those which were left pending at the close of the previous year.

APPENDIX XIII.

[*Vide* paragraph 26.]

Causes of Forest fires.

Province.	I.—Fires due to preventible causes.				II.—Other fires.				Total.	
	Fires originating in Departmental Fire-Conservancy operations.		External fires crossing the Fire traces.		Fires due to carelessness of outsiders.		Fires originating from intention or malice.			
	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.	No.	Sq. m.
Bengal	12	4	21	88	21	10	14	7	68	109
United Provinces — Central Circle	1	...	3	...	9	3	...	...	13	3
United Provinces — Oudh „	9	2	1	...	9	9	3	...	22	11
United Provinces — School „	2	...	3	...	5	1	1	...	11	1
	12	2	7	...	23	13	4	...	46	15
Punjab	2	...	24	1	114	1	87	9	227	11(*a*)
Burma — Pegu Circle	9	2	35	137	33	33	16	137	93	309
Burma — Tenasserim Circle	9	1	9	48	28	23	10	2	56	74
Burma — Northern „	5	...	2	...	19	46	2	...	28	46
Burma — Southern „	13	32	13	26	42	22	1	...	69	80
	36	35	59	211	122	124	29	139	246	509
Central Provinces — Northern Circle	21	69	35	109	90	185	7	2	153	365
Central Provinces — Southern „	13	4	39	93	109	121	23	46	184	264
Central Provinces — Berar „	13	2	9	2	43	24	8	4	73	32
	47	75	83	204	242	330	38	52	410	661(*b*)
Assam	...	...	8	5	2	...	2	...	12	5
Coorg	2	...	...	...	5	1	1	2	8	3
North-West Frontier	...	...	...	...	...	...	29	5	29	5
Ajmer	3	...	...	...	9	...	...	...	12	...
Total Bengal	114	116	202	509	538	479	204	214	1,058	1,318
Madras — Northern Circle	16	5	18	16	363	274	52	43	449	338(*c*)
Madras — Central „	6	...	44	52	201	218	136	52	387	322(*d*)
Madras — Southern „	7	1	20	9	240	78	90	42	367	130(*e*)
Total	29	6	92	77	804	570	278	137	1,203	790(*f*)
Bombay — Northern Circle	21	1	84	21	419	99	15	3	539	124(*g*)
Bombay — Central „	49	21	96	65	1,368	1,174	24	27	1,537	1,287
Bombay — Southern „	24	1	92	12	923	217	34	5	1,073	235(*h*)
Bombay — Sindh „	...	...	2	...	33	1	3	1	38	2
Total	94	23	274	98	2,743	1,491	76	36	3,187	1,648(*i*
Grand Total 1903-04	237	145	568	684	4,085	2,540	558	387	5,448	3,756
Grand Total 1902-03	307	401	526	922	3,268	2,514	742	795	4,843	4,632

(*a*) Includes 3 square miles of other than systematically protected areas.
(*b*) „ 429 „ „ „ partially protected areas.
(*c*) to (*f*) Includes 150, 20, 82, and 252 square miles of other than systematically protected areas.
(*g*) *Less* by 3 square miles than shown in Form No. 53 of Bombay Report for 1903-04.
(*h*) and (*i*) Includes 79 and 70 square miles of forests not systematically protected.

APPENDIX XIV.

[*Vide* paragraph 27.]

Protection from Cattle.

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			All classes of Forests.		
	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.	Total area.	Area closed to all animals.	Area closed to browsers only.
	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.	Sq. m.
Bengal	6,014	5,417	62	3,567	1,755	526	4,033	...	...	13,614	7,175	588
United Provinces	4,018	2,006	815	30	...	30	77	1	30	4,125	2,007	875
Punjab	2,456	612	491	4,903	58	81	1,914	57	173	9,279	732	745
Burma	20,039	16,584	(a)3,455	...	...	...	103,174	...	...	123,213	16,584	3,455
Central Provinces including Berar.	22,672	3,911	7,551	...	...	...	4	...	...	22,676	3,911	7,551
Assam	3,778	2,695	999	...	...	...	18,509	...	...	22,287	2,695	999
Coorg	419	158	...	39	...	...	121	...	...	579	158	...
North-West Frontier	234	64	59	...	...	...	...	...	...	234	64	59
Ajmer	142	19	(b) 123	...	...	...	6	...	...	148	19	123
Baluchistan	208	158	...	...	...	...	...	...	...	208	158	...
Andamans	156	33	...	...	...	...	1,795	...	...	1,951	33	...
Total Bengal	60,137	31,692	13,585	9,545	1,816	637	129,633	58	203	198,335	33,566	14,725
Madras	17,923	1,603	473	...	...	...	2,636	87	...	19,559	1,696	473
Bombay	13,487	2,409	8,737	1,320	...	224	...	...	...	14,807	2,409	8,961
Grand Total 1903-04	91,567	35,710	22,795	9,565	1,816	861	131,269	145	203	232,701	37,671	23,959
Grand Total 1902-03	90,750	35,518	21,813	9,519	1,810	663	116,555	91	886	216,824	37,452	36,362

(a) Excludes 1,850 square miles shown with 16,584 square miles in column 3.
(b) " 19. " " " " 142 " " " "

APPENDIX XV.

[*Vide* paragraph 37.]

Protection from Cattle.

Provinces.	Circle.	Grazed on payment, number of animals.										Grazed free, number of animals.									
		At full rates.					At privileged rates.					By right under Settlement.					During pleasure of Government or otherwise than under Settlement.				
		Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.	Buffaloes.	Cows and Bullocks.	Goats and Sheep.	Camels.	Other animals.
Bengal	...	4,731	11,477	5,083	...	23	9,620	193,309	17,144	...	535	23,786	76,671	23,887	...	...	11	341	130	...	...
United Provinces.	Central	26,431	76,295	5,207	4	1,101	8,775	38,626	102,661	...	2,187	12,700	95,469	5,942	...	928	530	3,477	921	...	...
	Outh	24,698	84,868	6,974	...	181	23,998	108,565	9,385	...	...	2,134	10,241	...	...	...	1,226	3,873	521	...	55
	School	16,195	40,497	15,871	2,856	6,909	1,136	8,598	110	...	62	578	14,446	25,906	...	20	...	1,349	...	...	...
Total	...	67,324	201,661	28,052	2,860	8,191	33,909	155,789	112,156	...	2,249	15,462	120,156	41,848	...	948	1,756	8,699	1,445	...	55
Punjab	...	17,813	59,688	456,475	12,248	672	1,156	14,352	233,539	264	173	145,134	622,649	567,366	282	10,129	42	768	651	1,553	764
Burma	Pegu	1,218	1,034	...	...	...	...	...	...	...	...	25,216	31,965	...	...	14	...	...	...	...	...
	Tenasserim	...	...	...	...	...	...	...	...	...	...	4,081	1,128	...	17	1	...	...	...	...	...
	Northern	...	...	...	...	...	22	...	...	...	...	9,412	202	...	...	...	1,628	257	...	...	626
	Southern	21	198	6	...	93	...	...	...	...	...	...	40,937	...	...	...	...	507	...	...	328
Total	...	1,239	1,230	6	...	93	22	...	...	...	...	38,709	74,232	...	17	15	1,628	764	...	...	954
Central Provinces.	Northern	184,265	822,825	60,284	97	3,996	...	...	...	...	...	...	...	...	...	...	143	13,862	65	...	...
	Southern	100,391	846,389	227,131	...	889	26,035	177,899	2,935	...	449	...	...	...	...	...	5	1,086	...	...	...
	Berar	118,118	607,158	488,047	149	2,238	2,204	18,911	35	...	2	349	118,678	113	...	21	8	320	...	...	...
Total	...	402,774	2,282,372	775,462	246	7,122	28,239	196,810	2,970	...	451	349	118,678	113	...	21	156	15,268	65	...	...
Assam	...	23,839	6,751	18	...	542	...	...	...	...	...	...	...	...	...	...	46,721	247,283	11,983	...	676
Coorg	...	251	2,223	...	...	...	...	...	...	...	...	...	1,750	...	...	...	...	...	...	...	...
North-West Frontier.	...	2,081	1,361	1,941	...	3	...	...	...	...	...	370	740	...	...	...	1,140	6,439	...	...	31
Ajmer	...	102	870	...	...	...	543	3,987	...	...	...	...	...	...	...	...	75	1,374	...	...	...
Baluchistan	...	296	2,427	...	...	3	...	...	...	...	...	...	751	16,652	1	224	...	...	...	...	...
Total Bengal	1903-04	525,520	2,581,257	1,277,037	15,314	16,649	73,489	564,247	365,709	264	3,469	223,810	1,015,627	649,866	300	11,337	51,530	280,936	14,274	1,553	2,480
	1902-03	463,634	2,292,316	1,158,745	9,444	17,674	63,294	501,392	361,849	82	2,602	203,117	1,111,027	643,830	227	10,373	53,903	318,549	17,166	3,625	2,736
Madras	Northern	90,205	444,033	708,617	...	52	3,449	27,201	...	...	...	...	2,685	5,505	...	...	1,351	2,229	1,761	...	...
	Central	35,373	758,325	715,177	...	7	222	817	749	...	...	...	1,900	...	...	...	1,944	16,560	227	...	...
	Southern	29,534	351,019	123,615	...	436	...	1,665	...	...	...	2,217	...	...	...	...	...	...	...	...	...
Total	1903-04	155,112	1,553,376	1,577,409	...	495	3,671	29,683	749	...	...	2,217	4,585	5,505	...	...	3,295	18,789	1,988	...	...
	1902-03	145,254	1,464,380	1,704,850	...	88	3,190	26,027	8,667	...	...	2,333	4,535	5,505	...	...	2,908	9,490	984	...	...
Bombay	Northern	831	2,588	...	...	31	2,953	8,600	...	...	...	2,614	12,991	...	...	1,364	...	...	...	...	...
	Central	7,613	35,340	203,823	1	2,902	30,808	300,910	149,014	5	21,147	1,130	4,567	...	...	...	5,628	49,149	25	...	560
	Southern	2,078	1,031	8,282	...	7	148,032	297,566	64,846	4	225	304	2,279	...	...	...	...	632	...	...	...
	Sindh	52,070	54,332	377,212	9,595	1,438	3,530	6,935	10,446	406	126	536	620	91	11	576	1,284	3,248	4,174	2,850	4,287
Total	1903-04	62,589	93,261	589,296	9,596	4,378	185,323	614,011	224,306	415	121,438	4,584	20,457	91	11	1,940	6,912	53,025	4,199	2,850	4,847
	1902-03	54,614	80,125	406,732	9,061	1,977	129,752	525,540	99,406	741	5,023	36,636	160,043	91	13	1,710	51,810	96 230	3,301	2,470	3,529
Grand Total.	1903-04	743,221	4,227,894	3,443,742	24,910	21,522	262,483	1,207,941	590,764	679	124,907	230,611	1,040,669	655,462	311	13,277	61,737	352,754	20,461	4,403	7,327
	1902-03	663,502	3,836 821	3,270,327	18,505	20,739	196,236	1,052,959	469,942	823	7,631	242,086	1,275,655	655,426	310	12,083	108,581	424,259	21,451	6,095	6,536

APPENDIX XVI.

[*Vide* paragraph 35.]

Area of Plantations and the cost of the year's work.

Province.	Area in acres. At commencement of the year. Regular Plantations.	Taungyas.	Total.	Added during the year. Regular Plantations.	Taungyas.	Total.	Excluded during the year. Regular Plantations.	Taungyas.	Total.	Balance at close of the year. Regular Plantations.	Taungyas.	Total.	Cost of operations during the year.
Bengal	2,954	...	2,954	2	...	2	1,370	...	1,370	1,586	...	1,586	463
United Provinces	3,355	...	3,355	17	...	17	...	...	...	3,372	...	3,372	1,512
Punjab	975	...	975	2	...	2	...	...	...	977	...	977	104
Burma	3,582	63,145*	66,727*	1,555	3,527	5,082	...	...	...	5,137	66,672	71,809	69,055‡
Central Provinces including Berar.	25†	1,253†	1,278†	150	924	1,074	...	236	236	175	1,941	2,116	798
Assam	3,252	7	3,259	10	...	10	40	...	40	3,222	7	3,229	6,809
Coorg	2,062	682	2,744	...	260	260	...	...	...	2,062	942	3,004	3,318
North-West Frontier	...	...	...	...	...	...	...	...	...	...	...	...	...
Ajmer	94*	...	94*	...	...	...	...	...	...	94	...	94	648
Baluchistan	33	...	33	...	...	...	...	...	...	33	...	33	73
Andamans	465	...	465	225	...	225	...	...	...	690	...	690	2,646
Total Bengal	16,797	65,087	81,884	1,961	4,711	6,672	1,410	236	1,646	17,348	69,562	86,910	85,421
Madras	42,599*	...	42,599*	258	...	258	7,718	...	7,718	35,139‡	...	35,139‡	32,359
Bombay	6,823*	...	6,823*	3,290	...	3,290	63	...	63	10,050	...	10,050	11,194
Grand Total 1903-04	66,219	65,087	131,306	5,509	4,711	10,220	9,191	236	9,427	62,537	69,562	132,099	128,974
Grand Total 1902-03	62,956	60,697	123,653	6,121½	3,137	9,258½	4,624	1	4,625	64,453½	63,833	128,286½	115,733

N. B.—The area under experimental plantation in Burma has been excluded.
* Corrected figures.
† Not shown in the Berar Report for 1902-03.
‡ Includes 8,014 acres of topes.
§ Excludes the charges for experimental plantations in South Tenasserim Division, Tenasserim Circle.

APPENDIX XVII.

[*Vide* paragraph 44.]

Outturn of Forest Produce.

I

Province.	Reserved Forests.			Protected Forests.			Unclassed Forests.			Average outturn per square mile.								
										Reserved Forests.			Protected Forests.			Unclassed Forests.		
	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos.	Minor produce.	Timber and Fuel.	Bamboos.	Minor produce.
	C. ft.	No.	R	C. ft.	No.	R	C. ft.	No.	R	C. ft	No.	R	C. ft.	No.	R	C. ft.	No.	R
Bengal	19,657,645	13,136,522	1,77,562	16,721,329	4,502,320	1,26,833	421,012	7,718,171	5,420	3,269	2,184	29	4,689	1,262	36	104	1,914	1
United Provinces	16,392,523	16,999,237	2,91,644	432,414	57,362	3,705	102,658	42,650	2,067	4,049	4,199	72	14,414	1,912	124	2,580	551	27
Punjab	9,237,890	901,123	2,23,516	10,807,014	26,819	2,62,397	2,664,906	51,637	71,063	3,761	367	91	4,033	5	54	1,391	27	37
Burma	9,854,659	13,203,008	1,24,970	...	...	...	33,692,722	44,799,000	1,62,635	492	659	6	...	...	...	375	434	1
Central Provinces including Berar.	22,836,628	23,172,333	7,33,939	...	...	...	...	...	...	1,097	1,022	32	...	...	...	...	...	...
Assam	1,492,743	1,231,070	35,741	...	...	...	11,150,084	29,277,804	3,84,934	395	326	9	...	...	...	602	1,582	21
Coorg	163,135	92,740	3,335	12,850	6,650	15,306	140,660	25,600	435	410	226	8	329	170	392	1,162	211	4
North-West Frontier	1,449,656	...	18,969	...	...	...	...	...	...	6,195	...	81	...	...	...	...	...	...
Ajmer	401,591	...	17,884	45	...	163	...	...	...	2,828	...	126	...	...	...	...	...	...
Baluchistan	16,806	...	11,552	...	...	...	324,195	...	28	81	...	55	...	...	...	...	...	...
Andamans	314,926	125,150	487	...	...	...	1,780,993	479,761	8,474	2,211	802	3	...	...	...	992	262	5
Total Bengal in 1903-04	81,853,205	68,861,175	16,39,599	36,976,652	4,593,151	4,08,409	55,370,230	82,385,676	6,32,031	1,365	1,145	27	4,327	54	47	427	636	5
Total Bengal in 1902-03	80,817,462	65,755,002	17,37,891	40,126,603	4,666,466	4,04,998	60,401,578	212,429,828	5,84,416	1,355	1,103	29	4,433	559	48	525	1,852	5

II

Presidency.	Total area under control of Forest Department.	Timber and Fuel.	Bamboos.	Minor produce.	Average outturn per square mile.		
					Timber and Fuel.	Bamboos.	Minor produce.
	Sq. m.	C. ft.	No.	R	C. ft.	No.	R
Bengal(*b*)	198,335	174,200,117	155,840,002	26,80,089	878	786	14
Madras(*c*)	19,559	20,404,621	37,025,554	12,66,664	1,043	1,893	65
Bombay	14,807	38,311,607	5,646,517	5,32,358	2,587	381	36
Grand Total 1903-04	232,701	232,916,345	198,512,073	44,79,111	1,001	853	19
Grand Total 1902-03	216,824	245,900,612	323,175,225	46,11,351	1,134	1,490	21

(*a*) Includes 59,891 cubic feet of timber, 220,230 cubic feet of fuel, 168,434 bamboos and R55 worth of minor produce removed for local use in the Settlement.

(*b*) Includes 289,131 cubic feet of timber and fuel, 168,434 bamboos and R44 worth of bamboos removed by Settlement officers in the Andamans.

(*c*) Includes 39,830 cubic feet of timber, 49,752 cubic feet of fuel, 59,395 bamboos and R1,572 worth of minor produce obtained by confiscation.

APPENDIX XVIII.

Forest Produce removed by different Agencies.

APPENDIX

[Vide

Forest Produce removed

Province.	Timber.				Fuel.			
	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.
	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.	C. ft.
Bengal	172,335	3,929,056	15,510	176,624	176,642	18,008,395	25,762	14,298,463
United Provinces	325,119	4,996,446	146,600	489,001	713,448	6,635,070	204,279	3,510,632
Punjab	1,095,580	2,289,674	20,820	1,013,228	2,221,988	1,374,747	156,428	23,534,375
Burma	5,268,110	22,723,216	302,821	534,147	52,607	17,471,743	...	2,194,723
Central Provinces including Berar	906,037	2,913,187	64,595	68,786	1,961,006	14,644,301	1,245,136	1,033,589
Assam	153,256	3,563,425	845,026	550	22,856	3,747,423	5,308,291	...
Coorg	94,855	135,620	1,900	...	17,270	72,000	...	...
North-West Frontier	315,706	580,336	49,624	...	32,400	417,424	19,136	34,980
Ajmer	214	5,644	...	8,148	335	384,824	2,340	184
Baluchistan	162	5,675	2,525	...	17,855	313,245	1,539	...
Andamans (d)	452,622	18,648	27,510	...	1,104,206	2,100	210,712	...
Total Bengal 1903-04	8,736,205	41,160,977	1,476,931	2,290,484	6,320,613	62,074,272	7,203,623	44,606,891
Total Bengal 1902-03	6,599,510	36,396,329	1,710,933	2,567,960	8,117,709	62,651,402	9,156,730	53,867,945
Madras	320,194	(b)2,476,856	67,679	77,321	6,180,433	(b)10,925,619	8,801	258,131
Bombay	1,037,144	3,505,664	149,694	43,319	4,465,788	27,557,075	3,495	1,548,978
Grand Total 1903-04	10,143,543	47,143,497	1,694,304	2,411,624	16,966,789	100,556,966	7,215,919	46,414,000
Grand Total 1902-03	7,956,504	42,225,599	1,863,352	2,669,748	19,312,835	99,227,096	9,167,786	63,170,597

(a) Excludes 59,891 cubic feet of timber, 220,236 cubic feet of fuel.
(b) Excludes 39,830 " " " " 49,752 " " " "

XVIII.

paragraphs 41-42.]

by different Agencies.

Bamboos.				Minor Produce including Grass and Grazing.				Province.
Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	Removed by Government.	Removed by Purchasers.	Removed by Free-grantees.	Removed by Right-holders.	
No.	No.	No.	No.	R	R	R	R	
434,962	19,535,559	293	5,356,200	2,004	1,85,347	1,095	1,21,374	Bengal.
74,627	16,818,914	453	205,255	40,324	2,00,848	5,032	51,212	United Provinces.
96,234	851,395	...	...	39,196	1,72,669	3,126	3,42,010	Punjab.
16,000	54,361,000	85,000	3,540,000	2,611	1,78,617	10,336	96,041	Burma.
251,146	21,961,081	331,166	609,000	21,658	6,87,664	12,764	11,853	Central Provinces including Berar.
3,937	28,309,197	2,196,740	...	27,258	89,153	3,01,264	...	Assam.
...	118,340	6,650	...	165	18,257	...	656	Coorg.
...	...	...	...	320	11,374	6,594	681	North-West Frontier.
...	...	...	...	2,968	2,002	1,425	11,652	Ajmer.
...	...	...	...	71	1,235	383	9,891	Baluchistan.
24,680	36,000	366,800	...	8,214	209	483	...	Andamans. (a)
903,586	142,040,485	2,987,042	9,740,455	1,44,787	15,47,375	3,42,302	6,45,370	1903-04 } Total Bengal.
1,378,701	266,627,555 (b)	4,627,868	9,980,393	1,19,713	15,54,631 (b)	404,589	618,426	1902-03 } Total Bengal.
513,189	36,169,698	233,360	29,912	59,292	11,56,409	5,886	43,505	Madras.
16,715	5,214,404	62,718	352,650	517	4,42,882	9,924	79,035	Bombay. (b)
1,433,520	183,444,587	3,283,120	10,123,017	2,04,596	31,46,666	3,58,312	7,67,910	1903-04 } Grand Total.
1,722,546	306,013,225	4,670,604	10,532,071	1,95,003	29,91,387	4,30,309	9,94,605	1902-03 } Grand Total.

16,434 bamboos and R55 worth of minor produce removed for local use in the Settlement.
59,395 " R1,572 " " obtained by confiscation.

APPENDIX XIX.

(*Vide* paragraphs 46-47.)

Comparative Statement of Revenue and Expenditure for the financial year 1903-04.

Provinces.	Revenue.		Surplus.		Deficit.		Proportion of Surplus to Gross Revenue.	Net Revenue per square mile of land under control of Forest Department.
	1903-04.	Average for preceding 5 years.	1903-04.	Average for preceding 5 years.	1903-04.	Average for preceding 5 years.		
	R	R	R	R	R	R.	Per cent.	R
Imperial	7,455	6,647	...	...	81,850	79,382	...	...
Bengal	10,65,523	11,78,609	3,62,015	5,99,142	...	...	33·9	27
United Provinces	22,60,446	16,97,816	11,99,008	7,17,714	...	...	52·6	289
Punjab	17,17,797	14,31,293	5,61,382	4,88,005	...	...	32·7	60
Burma	82,68,535	73,66,085	49,16,131	47,53,062	...	...	59·5	40
Central Provinces and Berar	19,98,032	14,52,318	7,17,066	2,50,462	...	...	35·9	32
Assam	6,75,732	5,21,793	2,50,248	1,68,376	...	...	37·0	11
Coorg	2,24,031	1,68,210	1,31,940	83,811	...	...	58·8	231
North-West Frontier	1,01,533	43,523	41,230	2,294	...	...	40·5	176
Ajmer	13,884	10,367	...	...	2,796	5,760	...	...
Baluchistan	18,363	16,607	...	...	3,334	10,606	...	...
Andamans	4,32,381	2,72,177	1,66,260	91,008	...	...	38·4	85
Forest School	3,088	3,213	...	...	56,301	66,944	...	...
Forest Surveys	431	909	...	...	33,504	33,022	...	...
Total Bengal	1,68,07,481	1,41,64,576	81,67,355	69,77,930	...	...	48·6	41
Madras	36,57,727	23,82,046	9,06,797	6,90,298	...	...	34·1	46
Bombay	27,51,539	24,76,163	9,75,802	5,21,676	...	...	35·5	66
Grand Total 1903-04	2,22,16,747	1,90,22,775	1,00,49,754	81,79,904	...	...	45·2	43
Grand Total 1902-03	1,94,71,640	*1,86,37,565	82,22,209	*80,55,413	...	...	42·2	38

* Corrected figures.

APPENDIX XX.

[*Vide* paragraph 48.]

Estimated value of Forest Produce given away free or at reduced rates during the forest year 1903-04.

Province.	Timber.	Fuel.	Bamboos.	Minor produce.	Grass and Grazing.	Total.
	₹	₹	₹	₹	₹	₹
Bengal	12,067	70,679	8,902	46,144	80,601	2,18,393
United Provinces	52,925	53,391	899	4,527	74,915	1,86,657
Punjab	42,009	2,60,106	...	47,574	2,97,562	6,47,251
Burma	84,912	16,407	9,011	8,495	96,256	2,15,081
Central Provinces including Berar.	13,735	41,793	11,815	17,318	44,929	1,29,690
Assam	61,081	82,769	6,195	81,985	2,19,279	4,51,309
Coorg	214	...	33	...	656	903
North-West Frontier	3,344	1,083	...	70	7,205	11,702
Ajmer	1,057	23	...	55	13,022	14,157
Baluchistan	540	18	...	383	9,391	10,332
Andamans	26,220	18,557	268	538	...	45,583
Total Bengal	2,98,104	5,44,826	36,623	2,07,089	8,44,316	19,30,958
Madras	38,945	5,233	1,102	42,240	7,151	94,671
Bombay	18,811	83,075	323	18,814	9,22,039	10,43,562
Grand Total 1903-04	3,55,860	6,33,134	38,548	2,68,143	17,73,506	30,69,191
Grand Total 1902-03	3,59,885	8,28,655	59,093	4,11,870	16,62,454	33,21,957

The revenue realized from Grass and Grazing throughout India was ₹17,31,066.

APPENDIX XXI.

[*Vide* paragraph 49.]

Details of Revenue and Expenditure for the financial year 1903-04.

				Amount. R	Proportion of Expenditure to Gross Revenue.
Gross Receipts	(a) Wood			1,76,19,219	
	(b) Minor forest produce			14,88,726	
	(c) Forest stamps and commutation fees for forest produce			7,01,657	
	(d) Grazing			12,75,874	
	(e) Revenue from forests not managed by Government			4,76,871	
	(f) Miscellaneous			6,54,400	
			TOTAL REVENUE	2,22,16,747	
				Amount. R	Per cent.
Expenditure — A Recurring	(a) Administration.	(i) Superior Staff		25,16,782	11·2
		(ii) Exchange Compensation Allowance.		91,234	·4
		(iii) Subordinate Staff (including Rangers, Foresters and Guards).		21,23,578	9·6
		(iv) Office Establishments (including Contingencies).		9,56,879	4·3
	(b) Working	(1) Extraction		34,76,894	15·7
		(2) Roads and Buildings		5,65,375	2·5
		(3) Fire-protection		5,16,783	2·3
		(4) Cultural operations		3,95,676	1·8
		(5) Live-stock, stores and plant.		3,63,874	1·6
		(6) Working-Plans		83,573	·4
		(7) Rent for leased forests		1,46,937	·6
		(8) Miscellaneous		99,034	·4
	(c) Expenditure on realization of revenue from forests not managed by Government.			33,145	·2
	(d) Forest Science and Education (including all "A" and "B" charges of Forest School).			59,338	·3
			Total	1,14,29,102	51·4
	B Extraordinary — (e) Forest Settlement			1,37,213	·6
	(f) Forest Surveys			4,36,857	2·0
	(g) Forest Demarcation			1,63,821	·8
			Total	7,37,891	3·4
			GRAND TOTAL EXPENDITURE	1,21,66,993	54·8
			Net Revenue	1,00,49,754	45·2

APPENDIX XXII.

Summary of Revenue and Expenditure of the Forest Department in India for the financial year 1903-04.

APPEN

[*Vide* paragraphs

Summary of Revenue and Expenditure of the

Budget Heads.	Imperial.	Bengal.	United Provinces.	Punjab.	Burma (Lower).	Burma (Upper.)	Central Provinces including Berar.	Assam.	Coorg.	North-West Frontier Province.
REVENUE.	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	1,445	1,72,614	5,65,896	12,61,253	28,97,354	11,82,346	3,50,495	1,01,514	1,81,332	39,829
II.—Timber and other produce removed from the forests by consumers or purchasers.	6,010	8,46,709	16,42,432	3,75,883	14,34,501	20,46,159	15,77,659	4,28,042	40,410	56,034
III.—Drift and waif wood and confiscated forest produce.	...	8,153	18,774	41,278	1,69,421	66,970	2,952	9,930	...	127
IV.—Revenue from forests not managed by Government.	...	...	10,079	3,154	3,69,336	...	1,019	81,054	...	58
V.—Miscellaneous . . .	...	38,047	43,265	36,229	52,635	49,813	65,907	55,192	2,289	5,785
Total Revenue .	7,455	10,65,523	22,80,446	17,17,797	49,23,247	33,45,288	19,98,032	6,75,732	2,24,031	1,01,833
EXPENDITURE.										
A.—Conservancy and Works.										
I.—Timber and other produce removed from the forests by Government agency.	...	1,19,754	2,33,488	4,07,845	8,94,040	2,41,077	2,22,348	66,705	20,994	17,856
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	65,243	33,414	591	16,160	13,643	1,01,543	5,763	...	196
III.—Drift and waif wood and confiscated forest produce.	...	2,440	6,957	13,136	58,323	25,129	70	259	...	20
IV.—Revenue from forests not managed by Government.	...	...	4,447	...	1,717	...	...	26,722	...	...
V.—Rent of leased forests and payments to shareholders in forests managed by Government.	...	...	1,12,090	3,08,802	...	...	...	27,032	...	6,560
VI.—Live-stock, stores, tools and plant.	...	15,281	19,754	4,222	61,852	46,149	24,337	19,191	6,122	196
VII.—Communications and buildings	...	85,074	1,21,409	29,273	76,935	53,001	65,112	18,184	3,730	2,527
VIII.—Demarcation, improvement, and extension of forests .	264	71,338	1,01,279	45,912	2,81,682	3,38,992	1,28,521	38,902	14,551	6,597
IX.—Miscellaneous . . .	...	4,339	5,751	2,746	12,627	8,786	5,807	2,926	1,045	60
Total A.—Conservancy and Works .	264	3,63,469	6,38,589	8,12,527	14,03,336	7,26,777	5,47,738	2,05,684	46,442	34,012
B.—Establishments.										
I.—Salaries	70,914	2,78,204	3,63,156	2,71,827	5,20,935	4,85,931	6,18,314	1,77,934	38,026	21,999
II.—Travelling allowances . .	13,412	46,700	50,334	49,000	71,595	86,632	64,332	31,798	6,616	3,268
III.—Contingencies . . .	4,755	15,135	29,359	23,061	34,531	22,667	50,582	10,068	1,107	1,324
Total B.—Establishments .	89,081	3,40,039	4,42,849	3,43,888	6,27,061	5,95,230	7,33,228	2,19,800	45,749	26,591
Grand Total of Expenditure .	89,345	7,03,508	10,81,438	11,56,415	20,30,397	13,22,007	12,80,966	4,25,484	92,191	60,603
Surplus . .	...	3,62,015	11,99,008	5,61,382	28,92,850	20,23,281	7,17,066	2,50,248	1,31,840	41,230
Deficit . .	81,890	...	...	...	...	...	...	...	...	...

DIX XXII.

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Forest Department in India for the financial year 1903-04.

Ajmer.	Baluchistan.	Andamans.	Forest School.	Forest Surveys (Imperial.)	Total Bengal Presidency.	Madras.	Bombay.	Grand Total.	Budget Heads.
R	R	R	R	R	R	R	R	R	REVENUE.
1,320	7,130	4,30,166	...	...	71,92,694	6,17,926	11,60,970	89,71,590	I.—Timber and other produce removed from the forests by Government agency.
11,293	1,598	1,477	...	...	84,68,207	18,90,730	15,06,996	1,18,65,933	II.—Timber and other produce removed from the forests by consumers or purchasers.
15	50	...	...	...	3,17,670	14,479	4,589	3,36,738	III.—Drift and waif wood and confiscated forest produce.
...	9,271	...	...	...	4,73,971	...	8,955	4,82,926	IV.—Revenue from forests not managed by Government.
1,256	314	738	3,038	431	3,54,989	1,34,592	70,029	5,59,560	V.—Miscellaneous.
13,884	18,363	4,32,381	3,038	431	1,68,07,481	26,57,727	27,51,539	2,22,16,747	Total Revenue.
									EXPENDITURE.
									A.—Conservancy and Works.
542	4,441	1,80,815	...	...	24,09,905	3,07,554	3,80,018	30,97,477	I.—Timber and other produce removed from the forests by Government agency.
91	...	...	...	...	2,36,644	1,09,869	49,104	3,95,617	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	...	...	1,06,334	1,107	304	1,07,745	III.—Drift and waif wood and confiscated forest produce.
...	343	...	...	...	33,229	...	...	33,229	IV.—Revenue from forests not managed by Government.
...	...	...	...	...	4,54,484	20,221	23,799	4,98,504	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
194	32	26,070	1,256	671	2,25,227	76,594	8,459	3,10,280	VI.—Live-stock, stores, tools and plant.
1,380	252	28,729	1,690	...	4,87,246	99,549	74,778	6,61,573	VII.—Communications and buildings.
2,433	117	2,744	...	5,316	10,33,648	2,79,558	2,49,485	15,62,691	VIII.—Demarcation, improvement, and extension of forests.
128	247	406	2,495	29	47,392	9,679	30,398	87,469	IX.—Miscellaneous.
4,718	5,432	2,38,764	5,441	5,916	50,39,109	9,04,131	8,11,345	67,54,585	Total A.—Conservancy and Works.
									B.—Establishments.
10,176	13,265	23,745	46,226	20,756	29,61,408	6,50,066	8,05,148	44,16,622	I.—Salaries.
1,031	2,500	2,719	3,799	1,042	4,34,783	1,39,786	1,08,634	6,83,203	II.—Travelling allowances.
755	500	893	3,876	6,216	2,04,826	56,947	50,810	3,12,583	III.—Contingencies.
11,962	16,265	27,357	53,898	28,019	36,01,017	8,46,799	9,64,592	54,12,408	Total B.—Establishments.
16,680	21,697	2,66,121	59,339	33,935	86,40,126	17,50,930	17,75,937	1,21,66,993	Grand Total of Expenditure.
...	...	1,66,260	...	...	81,67,355	9,06,797	9,75,602	1,00,49,754	Surplus.
2,796	3,334	...	56,301	33,504	...	...	...	...	Deficit.

[*Vide* paragraphs

Revenue, Expenditure and Surplus of the Forest Department throughout India during

(I) REVE

Provinces	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.
	£	£	£	£	£	£	£	£	£	£	£	£	£
Imperial*	37,981	38,937	37,697	30,022	32,997	28,571	15,906	4,166	5,817	4,077	1,759	6,270	6,638
Bengal	4,19,251	5,61,719	5,52,774	6,32,956	6,34,291	5,71,152	5,57,122	6,53,491	6,57,791	6,76,977	7,65,718	7,27,268	7,89,155
United Provinces	10,58,960	9,52,228	10,65,094	10,13,160	10,11,353	12,72,319	12,61,195	15,72,566	12,47,454	11,62,592	12,11,165	15,37,478	17,31,511
Punjab	6,69,819	5,71,678	6,83,208	7,46,709	9,10,177	7,19,252	8,59,115	11,27,277	7,35,936	10,15,768	9,21,713	8,21,970	10,20,071
Burma (Lower)	11,60,160	15,16,613	22,31,808	25,82,598	25,05,275	16,97,982	20,23,859	19,96,667	22,16,977	28,09,305	31,31,718	26,71,671	23,58,118
Burma (Upper)								1,06,971	2,85,479	13,79,923	18,05,070	16,11,757	12,17,809
Central Provinces	10,05,723	8,50,139	11,72,881	9,77,617	9,91,709	10,27,202	10,26,898	9,57,106	10,93,359	11,80,102	11,56,181	12,11,251	13,59,005
Assam	1,61,253	1,69,797	1,68,054	2,18,609	2,11,115	1,80,111	1,86,695	2,12,911	2,67,312	3,03,842	3,79,196	3,26,725	3,35,139
Coorg	1,01,226	67,857	1,00,161	1,38,662	17,622	1,19,233	89,396	99,291	1,71,025	1,58,163	97,753	1,33,561	1,22,897
North-West Frontier						2,31		2,11					
Ajmer	1,861	1,121	1,665	7,128	8,198	10,456	9,697	13,778	15,252	13,574	11,562	15,266	19,799
Forest Surveys (Imperial)	25	272		315	36	231	211	40	315	220	2,101	251	
Forest School						73	115	777	133	1,237	1,181	1,733	
Andamans	2,177	27,733	48,407	50,858	21,762	22,218	23,941	31,870	1,06,052	1,06,072	1,62,185	1,58,206	2,72,133
Total	66,13,891	62,55,869	61,23,171	66,51,303	70,85,109	59,61,201	63,04,955	67,77,305	68,19,689	91,19,610	1,01,53,911	93,69,671	98,06,331
Madras	6,96,154	7,06,880	4,76,008	9,08,112	9,57,701	11,05,548	11,58,050	12,45,911	13,01,020	15,15,005	15,57,077	17,05,405	16,31,715
Bombay	15,24,712	15,22,107	14,52,117	20,90,453	23,85,100	27,71,647	23,05,288	30,32,273	30,32,577	29,50,150	31,37,666	32,83,220	32,81,515
Total (British India)	87,65,771	71,05,556	87,71,146	2,52,014	3,00,218	2,91,115	3,16,251	3,36,391	3,06,117	8,01,977	1,59,419	1,61,102	3,11,183
Berar	3,97,500	1,98,156	2,53,111			231	231		1,265		1,69,511	1,87,109	
Forest Surveys (Berar)						231	231		1,265				
Baluchistan		11,376	18,616	5,039	4,652	6,613	14,962	14,081	14,063	5,653	13,837	15,725	20,607
Grand Total	70,72,271	73,37,132	90,38,273	97,45,153	1,08,54,882	1,01,90,170	1,12,05,345	1,13,58,185	1,16,18,233	1,38,98,151	1,53,03,572	1,49,67,135	1,51,17,910

The figures in this statement have been for
* Includes certain Home receipts and ex
† Amalgamated with the Central Provinces.

(II) EXPEN

Imperial*	73,510	65,791	77,533	87,262	98,095	96,305	89,215	85,226	78,626	86,199	91,311	85,414	85,725
Bengal	2,75,715	3,55,311	3,76,152	3,82,183	3,97,615	4,11,913	3,70,899	3,97,788	3,90,352	3,86,170	3,91,150	4,11,099	4,22,930
United Provinces	7,18,594	6,78,571	9,16,212	8,33,025	10,41,885	10,07,161	9,71,519	9,19,385	8,30,715	8,41,541	9,63,158	9,19,185	9,35,211
Punjab	4,89,626	4,95,398	5,16,269	5,09,750	5,53,196	5,58,079	6,75,483	7,16,510	6,77,912	5,93,825	6,45,555	6,53,941	6,40,275
Burma (Lower)	7,53,160	7,12,568	11,50,221	12,22,955	12,11,221	12,12,213	17,50,902	16,75,130	20,20,094	12,31,944	12,32,511	10,85,154	13,25,127
Burma (Upper)								2,188	1,21,155	7,83,129	2,23,800	2,02,315	3,73,256
Central Provinces	5,67,514	5,55,542	5,70,913	5,12,247	5,50,053	5,65,827	5,45,422	5,60,053	5,91,569	6,68,677	6,56,445	6,53,564	6,03,915
Assam	1,31,228	1,32,775	1,52,881	1,71,425	1,69,245	1,72,209	2,01,184	2,12,208	2,26,100	2,60,205	2,72,120	2,62,322	2,67,248
Coorg	55,683	52,157	59,296	64,770	75,022	76,951	85,690	76,648	72,529	80,175	72,720	65,918	85,800
North-West Frontier													
Ajmer	15,750	12,423	13,954	11,231	14,571	15,316	15,169	20,514	19,897	15,676	12,701	12,720	13,568
Forest Surveys (Imperial)	25,415	18,335	17,185	21,596	20,501	17,622	19,169	23,218	22,153	22,161	21,183	21,344	23,512
Forest School						2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Andamans	1,177	2,160	2,306	1,840	12,761	22,200	31,065	23,769	62,679	57,256	94,743	1,30,062	1,79,903
Total	30,73,691	30,77,221	33,25,871	32,01,710	41,57,292	41,40,563	49,78,127	41,11,448	41,31,533	50,08,344	49,79,615	47,17,954	52,09,511
Madras	2,15,527	2,19,276	2,03,119	2,45,352	2,85,733	2,90,506	3,01,972	11,20,715	11,20,794	12,20,794	11,67,737	12,16,913	13,21,294
Bombay	16,76,952	11,67,347	11,69,181	12,72,720	15,61,172	17,78,723	18,85,168	19,52,910	19,14,005	16,93,962	17,74,691	18,59,897	16,31,457
Total (British India)	47,01,207	44,61,111	46,98,171	47,25,782	55,18,157	62,25,791	68,55,570	72,20,482	72,04,750	79,19,607	78,11,543	78,24,764	81,62,319
Berar	1,10,505	1,22,965	1,32,965	1,55,051	1,56,779	1,67,619	1,50,212	1,71,304	1,53,765	1,70,212	1,76,519	1,66,201	1,98,56
Forest Surveys (Berar)					13,043	21,304	12,546	15,172	12,069	23,915	6,454		
Baluchistan		16,416	17,682	11,982	10,911	15,995	15,793	17,536	17,735	13,991	17,932	29,150	20,467
Grand Total	48,11,712	45,99,825	47,79,138	48,92,815	57,06,890	70,26,510	70,74,551	73,55,502	73,48,308	81,29,761	80,12,448	80,53,125	83,31,182

* Includes pay of Inspector-General of Forests,
† Amalgamated with the Central Province.

(III) SUR

Imperial*	−56,526	−26,491	−40,825	−56,239	−65,358	−69,732	−73,309	−82,112	−73,779	−82,192	−76,552	−79,044	−79,087
Bengal	1,43,536	2,06,408	1,76,622	2,50,773	2,36,676	1,59,237	2,27,023	2,56,703	2,67,439	3,00,807	3,74,568	3,16,169	3,66,225
United Provinces	3,23,372	2,82,651	1,49,882	1,71,378	30,532	2,65,158	2,89,676	6,53,181	4,16,739	3,18,215	2,51,008	6,18,293	7,96,300
Punjab	1,80,193	1,76,280	1,67,038	2,05,959	3,57,091	1,61,172	1,83,632	4,10,767	1,09,021	4,21,943	2,75,858	1,81,329	3,79,796
Burma (Lower)	4,06,700	8,03,045	10,81,586	12,71,911	12,91,454	4,85,769	2,72,957	3,21,537	1,95,883	15,77,361	19,01,172	15,81,737	10,32,991
Burma (Upper)								1,04,783	1,64,324	5,96,794	15,82,270	14,11,442	8,44,553
Central Provinces	4,37,209	2,94,597	6,15,871	5,65,369	5,41,711	5,31,391	5,81,492	4,58,117	5,10,190	5,11,903	4,99,736	5,77,187	7,55,090
Assam	31,025	37,022	16,173	47,184	41,870	7,902	15,511	99,297	41,212	42,637	1,06,476	64,403	68,109
Coorg	45,543	15,700	40,865	73,892	57,399	42,282	3,706	22,643	98,496	77,988	25,033	67,643	36,897
North-West Frontier													
Ajmer	−13,889	−11,298	−7,289	−4,103	−6,373	−5,860	−5,472	−6,736	−4,645	−2,102	−1,139	2,546	5,813
Forest Surveys (Imperial)	−25,390	−18,063	−17,185	−21,281	−20,501	−17,390	−18,958	−23,178	−22,153	−21,946	−21,081	−21,093	−23,512
Forest School						−2,000	−2,000	−2,000	−2,000	−2,000	−2,000	−2,000	−2,000
Andamans	−1,000	25,573	46,101	50,018	12,601	−547	−7,091	8,101	41,373	48,785	67,220	28,944	92,572
Total	15,25,203	23,69,015	23,02,256	25,49,565	29,17,158	17,83,611	22,25,228	26,69,356	23,53,152	41,11,786	52,71,726	45,22,720	45,96,715
Madras	77,641	1,11,618	2,02,185	2,61,760	1,66,971	2,20,411	2,60,078	1,24,796	2,15,769	2,94,219	3,89,660	4,88,492	3,09,962
Bombay	5,47,759	3,55,165	3,56,941	5,11,733	8,23,928	9,93,076	5,20,119	10,79,363	10,82,572	11,56,212	13,67,025	14,14,333	12,53,199
Total (British India)	20,50,567	28,35,115	31,61,382	33,22,228	40,22,756	30,03,171	29,13,331	38,36,513	36,20,432	55,62,205	70,27,501	65,99,545	61,79,876
Berar	1,96,304	1,37,583	80,552	1,36,960	1,34,136	1,46,315	1,38,666	1,54,132	1,40,696	1,47,765	1,63,065	1,48,183	1,92,819
Forest Surveys (Berar)					13,043	21,304	12,546	15,172	12,069	23,915	6,454		
Baluchistan		−2,040	931	−6,973	−12,159	−1,177	−2,787	−3,755	−3,656	−10,332	−4,065	−13,728	−9,883
Grand Total	22,57,561	25,17,663	32,42,125	38,52,275	41,47,992	31,53,050	41,39,791	39,42,594	41,89,922	57,61,690	72,91,054	69,01,910	67,22,812

* Includes pay of Inspector General of Forests, certain Home
† Amalgamated with the Central Provinces.

DIX XXIII.

46, 47, and 49.]

the 25 (financial) years from 1879-80 to 1903-04.

NUE.

1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.	1900-01.	1901-02.	1902-03.	1903-04.	Provinces.
£	£	£	£	£	£	£	£	£	£	£	£	
5,340	2,830	4,920	2,620	5,100	12,130	12,540	6,020	2,460	3,140	3,620	7,150	Imperial.
7,47,880	8,01,010	7,95,670	8,11,710	10,20,350	11,19,780	9,22,310	11,25,910	12,33,232	12,97,277	12,45,171	10,65,[illegible]	Bengal.
16,12,540	17,46,980	16,58,250	15,61,940	15,41,220	15,86,670	15,68,040	16,11,780	15,65,788	17,45,506	20,25,324	22,30,145	United Provinces.
3,12,620	2,13,200	10,72,430	9,16,500	11,07,720	10,68,180	14,71,420	11,00,770	13,50,812	15,47,555	15,86,408	15,17,720	Punjab.
23,23,270	24,63,350	22,71,670	21,14,540	20,18,220	20,46,200	12,22,360	13,65,230	14,43,263	26,06,125	27,27,202	27,27,217	Burma (Lower).
22,75,650	22,55,760	21,62,490	22,21,240	21,81,890	21,72,060	21,27,020	25,06,820	25,11,061	22,67,545	30,16,151	24,54,[illegible]	Burma (Upper).
12,37,850	11,31,180	10,61,690	9,56,940	7,03,300	7,80,050	8,96,100	8,19,960	8,61,062	11,15,722	16,21,172	12,[illegible]	Central Provinces.
3,12,000	3,58,500	3,50,000	3,15,690	4,36,410	3,61,220	3,56,180	4,68,100	4,19,271	3,12,935	3,60,200	2,[illegible]	Assam.
1,80,680	1,72,790	1,83,050	1,85,250	93,000	1,30,910	1,35,070	1,62,410	1,97,598	1,80,212	1,90,730	2,[illegible]	Coorg.
									13,012	1,04,125	3,[illegible]	North-West Frontier.
14,190	14,620	12,810	15,640	12,270	15,510	14,420	10,270	16,616	6,[illegible]	5,[illegible]	13,[illegible]	Ajmer.
530	210	80	510	400	220	290	120	371	173	7,[illegible]	1[illegible]	Forest Surveys (Imperial).
1,860	1,960	2,780	4,340	2,850	2,950	2,960	3,210	3,097	3,515	3,[illegible]	3,[illegible]	Forest School.
3,60,150	4,41,790	1,11,530	1,22,120	3,62,370	4,23,710	2,29,160	2,67,000	2,77,[illegible]	2,66,503	3,25,[illegible]	4,72,[illegible]	Andamans.
1,16,47,530	1,15,67,900	1,05,45,190	1,03,42,530	1,19,87,100	1,26,88,950	1,41,72,060	1,47,06,530	1,41,19,286	1,21,22,451	1,45,09,222	1,67,89,[illegible]	Total.
15,77,210	16,17,180	15,94,030	15,16,520	15,03,350	21,36,350	22,10,220	21,02,250	22,40,170	25,13,139	25,13,819	26,57,[illegible]	Madras.
32,60,560	27,84,350	27,57,020	25,96,070	30,27,710	30,15,660	27,85,150	23,15,220	23,61,[illegible]	22,82,729	25,82,[illegible]	27,41,[illegible]	Bombay.
1,55,91,290	1,72,03,490	1,62,96,120	1,65,20,140	1,72,23,220	1,72,40,100	1,85,82,760	1,91,43,220	1,91,20,925	1,77,18,610	1,96,52,200	2,21,[illegible]	Total (British India.)
1,31,020	1,42,370	1,17,100	1,01,340	5,17,120	4,90,250	3,59,840	3,78,230	3,02,552	1,87,360			Berar.
												Forest Surveys (Berar).
18,030	19,730	16,300	14,930	15,460	45,010	18,920	17,090	16,956	14,712	18,236	18,[illegible]	Baluchistan.
1,53,41,340	1,77,12,020	1,67,83,880	1,70,98,330	1,78,56,510	1,77,85,490	1,90,38,520	1,95,09,610	1,97,70,[illegible]	1,78,23,715	1,91,77,540	2,22,[illegible]	Grand Total.

rished by the Comptroller and Auditor General.
distributable and petty local items.

DITURE.

1,07,221	80,810	81,950	80,410	73,960	81,300	85,650	96,450	83,578	79,536	85,017	89,[illegible]	Imperial.
5,81,[illegible]	6,01,010	5,97,200	5,95,070	6,50,340	6,53,410	5,86,220	5,45,210	5,80,[illegible]	6,57,131	6,75,[illegible]	7,05,[illegible]	Bengal.
9,22,540	9,63,660	9,36,310	9,12,660	9,05,810	9,17,250	9,72,030	9,32,350	9,63,132	10,16,734	10,13,308	10,81,[illegible]	United Provinces.
6,56,220	6,38,420	7,22,120	6,73,420	7,23,300	7,71,910	8,55,310	12,11,460	14,87,313	9,38,335	9,60,095	11,56,[illegible]	Punjab.
12,63,250	13,11,540	12,74,220	12,57,710	12,57,290	13,01,110	12,29,750	15,01,170	15,24,[illegible]	13,05,[illegible]	13,[illegible]	20,30,[illegible]	Burma (Lower).
1,41,750	2,09,650	2,38,200	2,15,600	2,24,130	7,92,500	3,56,620	9,45,970	11,20,961	12,27,021	12,56,146	13,[illegible]	Burma (Upper).
8,51,[illegible]	9,52,150	9,25,050	9,52,340	9,59,000	9,21,440	8,71,250	10,11,450	9,30,[illegible]	9,73,211	12,57,[illegible]	14,[illegible]	Central Provinces.
2,54,[illegible]	2,63,[illegible]	2,72,[illegible]	2,85,[illegible]	2,58,[illegible]	3,08,[illegible]	3,57,[illegible]	3,57,[illegible]	4,17,[illegible]	4,12,[illegible]	5,77,[illegible]	5,[illegible]	Assam.
73,000	86,[illegible]	86,140	83,[illegible]	71,[illegible]	87,[illegible]	80,[illegible]	74,[illegible]	80,[illegible]	88,[illegible]	88,[illegible]	92,[illegible]	Coorg.
									13,[illegible]	54,[illegible]	60,[illegible]	North-West Frontier.
15,000	15,[illegible]	14,[illegible]	15,[illegible]	12,[illegible]	14,[illegible]	16,[illegible]	15,[illegible]	15,[illegible]	14,[illegible]	16,[illegible]	15,[illegible]	Ajmer.
27,[illegible]	27,[illegible]	27,[illegible]	25,[illegible]	25,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	Forest Surveys (Imperial).
60,[illegible]	63,[illegible]	69,[illegible]	67,[illegible]	69,[illegible]	69,[illegible]	69,[illegible]	71,[illegible]	72,[illegible]	71,[illegible]	66,[illegible]	68,[illegible]	Forest School.
2,87,210	2,14,[illegible]	3,22,[illegible]	3,02,[illegible]	3,15,[illegible]	2,87,[illegible]	1,38,[illegible]	1,40,[illegible]	1,40,[illegible]	2,01,[illegible]	2,81,[illegible]	2,96,[illegible]	Andamans.
53,66,[illegible]	55,53,[illegible]	56,95,[illegible]	56,91,[illegible]	62,59,[illegible]	62,73,[illegible]	62,31,[illegible]	65,19,[illegible]	67,71,[illegible]	70,05,[illegible]	77,14,[illegible]	85,12,[illegible]	Total.
12,30,[illegible]	13,67,[illegible]	13,85,[illegible]	11,15,[illegible]	15,91,[illegible]	15,72,[illegible]	15,91,[illegible]	16,21,[illegible]	17,15,[illegible]	17,09,[illegible]	18,35,[illegible]	17,[illegible]	Madras.
19,01,[illegible]	20,71,[illegible]	20,67,[illegible]	19,58,[illegible]	19,97,[illegible]	20,72,[illegible]	18,37,[illegible]	21,28,[illegible]	24,68,[illegible]	17,19,[illegible]	16,76,[illegible]	17,74,[illegible]	Bombay.
86,21,[illegible]	90,32,[illegible]	90,80,[illegible]	90,45,[illegible]	97,73,[illegible]	99,21,[illegible]	97,63,[illegible]	3,07,61,[illegible]	1,08,56,[illegible]	1,01,96,[illegible]	1,12,26,[illegible]	1,23,45,[illegible]	Total (British India).
2,29,[illegible]	2,51,[illegible]	2,52,[illegible]	2,15,[illegible]	2,41,[illegible]	2,46,[illegible]	2,32,[illegible]	2,34,[illegible]	2,35,[illegible]	2,25,[illegible]			Berar.
												Forest Surveys (Berar).
55,[illegible]	53,[illegible]	49,[illegible]	51,[illegible]	28,[illegible]	21,[illegible]	23,[illegible]	28,[illegible]	29,[illegible]	24,[illegible]	23,[illegible]	21,[illegible]	Baluchistan.
89,06,[illegible]	93,10,[illegible]	93,73,[illegible]	93,32,[illegible]	1,00,45,[illegible]	1,01,95,[illegible]	1,00,33,[illegible]	1,10,21,[illegible]	1,11,50,[illegible]	1,07,16,[illegible]	1,12,49,[illegible]	1,24,05,[illegible]	Grand Total.

certain home charges, and undistributable and petty local items.

PLUS.

−1,02,[illegible]	−72,[illegible]	−73,[illegible]	−73,[illegible]	−74,[illegible]	−65,[illegible]	−67,[illegible]	−20,[illegible]	−81,[illegible]	−76,[illegible]	−81,[illegible]	−91,[illegible]	Imperial.
3,63,[illegible]	3,97,[illegible]	3,98,[illegible]	4,10,[illegible]	6,10,[illegible]	5,82,[illegible]	3,36,[illegible]	5,50,[illegible]	6,80,[illegible]	6,34,[illegible]	6,15,[illegible]	5,66,[illegible]	Bengal.
3,23,[illegible]	1,16,[illegible]	1,21,[illegible]	2,52,[illegible]	3,33,[illegible]	3,28,[illegible]	5,96,[illegible]	6,72,[illegible]	6,02,[illegible]	1,05,[illegible]	10,11,[illegible]	11,[illegible]	United Provinces.
1,55,[illegible]	2,75,[illegible]	3,10,[illegible]	2,56,[illegible]	2,51,[illegible]	2,95,[illegible]	6,19,[illegible]	1,93,[illegible]	3,53,[illegible]	5,01,[illegible]	6,25,[illegible]	5,61,[illegible]	Punjab.
22,[illegible]	21,[illegible]	23,[illegible]	23,[illegible]	23,[illegible]	26,[illegible]	23,[illegible]	23,[illegible]	20,[illegible]	21,[illegible]	27,[illegible]	21,[illegible]	Burma (Lower).
15,[illegible]	17,[illegible]	16,[illegible]	17,[illegible]	18,[illegible]	21,[illegible]	22,[illegible]	23,[illegible]	23,[illegible]	16,[illegible]	16,[illegible]	24,[illegible]	Burma (Upper).
3,79,[illegible]	2,02,[illegible]	2,57,[illegible]	1,42,[illegible]	−1,77,[illegible]	−1,31,[illegible]	1,23,[illegible]	−2,24,[illegible]	3,[illegible]	1,69,[illegible]	4,77,[illegible]	7,11,[illegible]	Central Provinces.
1,18,[illegible]	2,86,[illegible]	1,51,[illegible]	1,34,[illegible]	2,86,[illegible]	2,[illegible]	2,[illegible]	2,[illegible]	2,01,[illegible]	1,51,[illegible]	1,52,[illegible]	1,[illegible]	Assam.
1,07,[illegible]	88,[illegible]	95,[illegible]	93,[illegible]	71,[illegible]	83,[illegible]	71,[illegible]	84,[illegible]	66,[illegible]	87,[illegible]	1,01,[illegible]	1,[illegible]	Coorg.
									−5,[illegible]	47,[illegible]	51,[illegible]	North-West Frontier.
−110	−1,[illegible]	−2,[illegible]	−90	−3,[illegible]	270	−1,[illegible]	−5,[illegible]	−5,[illegible]	−6,[illegible]	−6,[illegible]	−7,[illegible]	Ajmer.
−21,[illegible]	−27,[illegible]	−29,[illegible]	−29,[illegible]	−31,[illegible]	−29,[illegible]	−29,[illegible]	−29,[illegible]	−29,[illegible]	−29,[illegible]	−30,[illegible]	−31,[illegible]	Forest Surveys (Imperial).
−18,[illegible]	−63,[illegible]	−57,[illegible]	−57,[illegible]	−59,[illegible]	−57,[illegible]	−57,[illegible]	−57,[illegible]	−57,[illegible]	−72,[illegible]	−63,[illegible]	−59,[illegible]	Forest School.
1,29,[illegible]	1,97,[illegible]	−5,[illegible]	30,[illegible]	53,[illegible]	1,56,[illegible]	59,[illegible]	1,19,[illegible]	1,57,[illegible]	67,[illegible]	18,[illegible]	1,06,[illegible]	Andamans.
56,61,[illegible]	52,79,[illegible]	50,23,[illegible]	53,61,[illegible]	57,17,[illegible]	63,48,[illegible]	78,42,[illegible]	63,17,[illegible]	73,77,[illegible]	53,56,[illegible]	67,95,[illegible]	81,70,[illegible]	Total.
2,46,[illegible]	3,81,[illegible]	3,67,[illegible]	4,61,[illegible]	7,67,[illegible]	5,87,[illegible]	5,15,[illegible]	6,25,[illegible]	6,25,[illegible]	5,82,[illegible]	7,18,[illegible]	9,05,[illegible]	Madras.
12,64,[illegible]	17,22,[illegible]	15,82,[illegible]	15,12,[illegible]	16,63,[illegible]	5,13,[illegible]	4,55,[illegible]	2,95,[illegible]	5,32,[illegible]	6,00,[illegible]	6,52,[illegible]	9,75,[illegible]	Bombay.
72,72,[illegible]	74,83,[illegible]	72,12,[illegible]	75,11,[illegible]	75,19,[illegible]	71,55,[illegible]	88,15,[illegible]	77,52,[illegible]	85,55,[illegible]	68,15,[illegible]	82,26,[illegible]	1,00,53,[illegible]	Total (British India).
2,61,[illegible]	2,29,[illegible]	2,21,[illegible]	2,15,[illegible]	2,75,[illegible]	2,[illegible]	2,[illegible]	2,[illegible]	2,[illegible]	2,[illegible]			Berar.
												Forest Surveys (Berar).
−36,[illegible]	−13,[illegible]	−23,[illegible]	−25,[illegible]	−11,[illegible]	−12,[illegible]	−12,[illegible]	−11,[illegible]	−12,[illegible]	−3,[illegible]	−3,[illegible]	−3,[illegible]	Baluchistan.
74,38,[illegible]	83,72,[illegible]	74,15,[illegible]	77,05,[illegible]	78,11,[illegible]	75,50,[illegible]	90,03,[illegible]	79,81,[illegible]	86,10,[illegible]	70,77,[illegible]	82,22,[illegible]	1,00,49,[illegible]	Grand Total.

charges, and undistributable and petty local items.

APPENDIX XXIV.

[*Vide* paragraph 53.]

EXPORTS OF FOREST PRODUCE.

ARTICLES OF FOREST PRODUCE.	QUANTITY IN TONS OF 20 CWT., IN THE CASE OF TEAK, CUBIC TONS.		VALUATION AT PORT OF SHIPMENT IN 1903-04.	
	Average of 5 years, 1898-99 to 1902-03.	In 1903-04.	Total.	Per ton.
			R	R
Caoutchouc	273	90	3,47,196	3,858
Lac—Button	1,696	2,525	49,35,903	1,955
Lac—Shell	8,540	8,975	2,18,30,905	2,146
Lac—Stick and other kinds	202	231	3,72,162	1,626
Lac dye	2 cwt.	...	...	...
Sandal, ebony and other ornamental woods	...	Information not available.	12,10,498	...
Cutch and gambier	4,281	5,552	19,73,111	349
Myrabolams	61,127	61,480	42,10,238	68
Teak	69,547	73,913	91,45,605	124
Cardamoms	81	128	2,37,613	2,038
TOTAL IN 1903-04	...	...	3,44,63,691	...
" 1902-03	...	...	3,20,38,363	...

G. I. C. P. O.—No. 2484 R. & A.—27-1-06—330—R. N. D.

INDIA

SHOWING

DISTRIBUTION OF FOREST LANDS

UNDER GOVERNMENT CONTROL

00134396

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Government of Maharashtra

on 01 February, 2020